FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Member ABC

FEBRUARY, 1944

Vol. 97. No. 2

Marines Get a Taste of Firefighting on Bougainville when 8,000 Drums of Gasoline Go Up in Smoke.

A CASE - SHEPPERD - MANN PUBLICATION

"EMERSON EQUIPPED!"

The Jay Stevens Disaster Unit of the Portland Fire Dept.

The Hall-mark of EXCELLENCE in LIFE SAVING

When a Fire Department is "EMERSON EQUIPPED" in resuscitation apparatus, it is prepared to give its community the best protection against asphyxial death available.

Are you "EMERSON EQUIPPED?"

If not, then write for literature or an actual demonstration.

J. H. EMERSON COMPANY

Representatives in Principal Cities

22 COTTAGE PARK AVENUE CAMBRIDGE, MASS.

for your fine achievement in the production of war equipment

WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.

23 December 1943

To the Men and Women
of the Chippewa Falls and Chicago Avenue Plants
W. S. Darley and Company
2210 Washington Boulevard
Chicago, Illinois

This is to inform you that the Army and Navy are conferring upon you the Army-Navy Production Award for your fine achievement in the production of war equipment.

This award consists of flags to be flown above your plants and a lapel pin, significant of major contribution to victory, for every individual in your plants.

The high and practical patriotism of you men and women of the Chippewa Falls and Chicago Avenue Plants is inspiring. Your record will be difficult to surpass, yet the Army and Navy have every confidence that it was made only to be broken.

Sincerely yours,

Robert P. Patterson
Under Secretary of War

★
Fire Fighting Apparatus
★
Triple Combinations
★
High Pressure Fog Pumpers

★
Trailer and Skid Mount Pumps
★
Crash Trucks

W. S. DARLEY & CO. CHICAGO, 12 ILLINOIS

FIRE ENGINEERING

A Consolidation of Fire and Water Engineering, The Fire Engineer and Fire Protection

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FRED SHEPPERD
Editor

Who Can Top This Record?

WE have just received from The Stanley Works, New Britain, Conn., an order renewing their subscription to FIRE ENGINEERING to Feb. 1, 1945—making a record of 46 years of continuous subscription to this journal. (They started Jan. 1, 1899.)

● Can any other subscriber top this record? We shall be mighty glad to hear from other old-timers.

Save Paper!

● But why show a drawing of a fellow trying to put new life into an old tire? That's merely to remind you that we on the home front have a big job to do in salvaging all sorts of things—not only rubber and metal scrap, fuel, gasolene and food but even paper.

● As publishers, we are keenly aware of the serious shortage of paper that now exists, and we urge renewed effort to save all your scrap paper—save, save, save! It all helps tremendously.

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering, Sewage Works Engineering*, etc. ¶Subscription price U. S. and Latin America, $2 a year; Canada, $2.50; Foreign, $3; Single copies, 25c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879. ¶Contents of this issue copyrighted, 1944, by Case-Shepperd-Mann Publishing Corp. ¶KARL M. MANN, President; I. HERBERT CASE, Vice-President and General Manager; FRED SHEPPERD, Secretary and Editorial Director; W. J. GIBSON, Eastern Representative; WM. H. TOPHAM, Circulation Manager. CHICAGO OFFICE: W. S. CLEVENGER and L. M. ROCHE, 6 No. Michigan Ave., Chicago 2, Ill.; SAN FRANCISCO: CHARLES H. WOOLLEY, 605 Market Street, San Francisco 5, Calif.; LOS ANGELES: AUGUST HAURIN, 6000 Miramonte Blvd., Los Angeles 1, Calif. ¶Printed in U. S. A.

A CASE-SHEPPERD-MANN PUBLICATION
"*Specialized* Leadership"

BARTON-AMERICAN FRONT MOUNTED PUMP

CONVERTS JEEP INTO LOW-COST SPEEDY, POWERFUL, FOREST GRASS AND BRUSH

FIRE FIGHTER!

Several hundred Jeeps have already been released for civilian use. As others become available, this low-cost fire fighting combination will be the answer to the need for equipment that can go places and do things with grass, brush and forest fires that no conventional apparatus could ever do.

Actual war service has already proven that the four-wheel drive Jeep can make its own road through brush and tall grass, and packs plenty of power to pull an auxiliary water tank if necessary. The time-tested Barton-American centrifugal pump will stand the rough usage encountered in this type of fire fighting, and the outfit can pump either direct from its own tank or lift and pump water from streams or lakes.

The Barton-American front-mounted centrifugal fire pump has been time-tested for over 20 years. It is available in various sizes from 60 to 500 GPM for pressures up to 300 pounds. It can be completely installed on the Jeep or any other commercial chassis by any mechanic in a few hours' time.

The Front Mounted Pump is also Available for Standard Chassis.

AMERICAN-MARSH PUMPS, INC.

CENTRIFUGAL, TURBINE, STEAM AND POWER PUMPS

BATTLE CREEK, MICHIGAN . . . PUMPS AND PUMPS ONLY SINCE 1873

Firemen have a comfortable feeling when Seagrave Apparatus is in their fire stations. . . . They know from experience that here is a weapon in which they can place full confidence. . . . Apparatus that will perform equally well in the torrid heat of summer or the sub-zero cold of winter. . . . Dependable, sure, efficient, that's what Seagrave means to the fire services of the world. . . . It also means abundant power, reserve stamina, trouble-free service. . . . That's why Seagrave has been the leading exclusive manufacturer of fire fighting machines for 63 years. . . . That's why then and now and in the future Seagrave will always be "The Greatest Name in Fire Apparatus."

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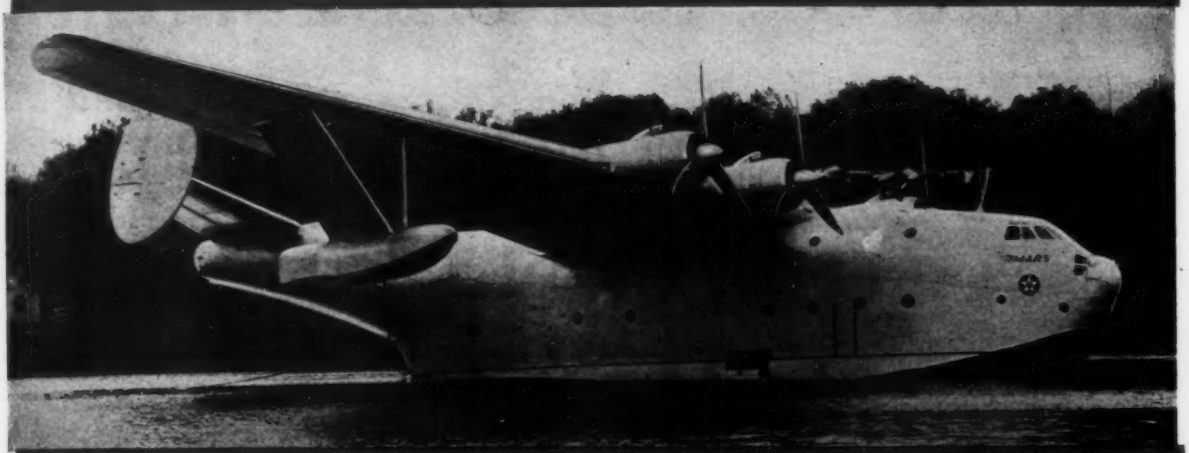
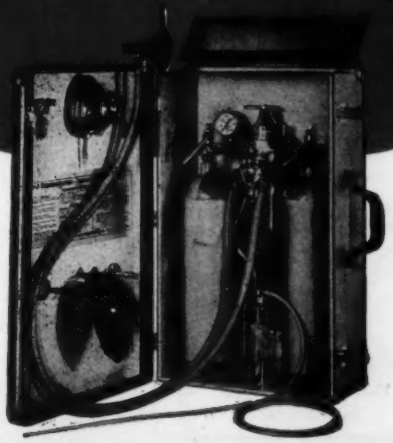


Protects its thousands of workers with

The E & J RESUSCITATOR INHALATOR and ASPIRATOR

FIRST CHOICE IN FIRST AID

Probably no aircraft builder has made a greater contribution to aviation advancement in general and the war effort in particular, than the Glenn L. Martin Company. And certainly no manufacturer has done more to bring about safer working conditions for its employees. That the Martin plant, a model of modern industrial safety, is equipped with a large number of E & J Resuscitators is a distinction for which we feel justly proud. Many of the other outstanding industries which form the backbone of the war effort are E & J equipped, too, because they know from experience that mechanical artificial respiration, the E & J way, can be used with absolute safety and extreme effectiveness in the most desperate cases of asphyxia complicated by severe internal injuries, bad burns, fractured ribs, etc.



Wherever you go, from one end of the country to the other, you'll find ever-increasing evidence of E & J dependability — time-tested proof of its superiority.

For further information write any of our distributors listed below.

E & J MANUFACTURING CO., GLENDALE, CALIF.

Philadelphia New York City Pittsburgh Detroit, Mich. Boston Chicago
2332 W. 25th Ave., Denver, Colorado

Pioneers and Specialists in Mechanical Artificial Respiration

Midwestern Fireman's Rubber Type or Duck Suit

Combination Suit: Coat and Pants With Detachable Linings

Special combination suit of Midwestern Rubberized Coat and Bunker Pants, with detachable wool linings. Flexible elastic inner sleeve for wrist. Keeps out water, cold and sparks. All Midwestern coats are so equipped. The coat with Bunker Pants below are Midwestern's outfit No. 101.

1. Adjustable collar strap.
2. Reinforced collar band for lining.
3. Lining attached with quick snap buttons.
4. Corduroy lined collar.
5. Reinforced, double stitched seams.
6. Reinforced by rivets at points of strain.
7. Vertical seams in sleeve shoulders.
8. Inside of fabric, heavily napped cloth.
9. Midwestern safety snaps.
10. Two outside pockets.
11. Midwestern's Special Vanitex fabrics.
12. Lining edges reinforced with rubberized fabric.
13. Wool detachable lining.
14. 6-inch storm flap.

Wool lining can be added to any Midwestern Bunker Pants at a small additional cost.

See your local Midwestern Distributor for prices and literature, or write the factory.

★

Buy War Bonds

The World's Best Investment

BUNKER PANTS

1. Lining held by snap buttons.
2. Rubberized fabric belt in lining.
3. Eight suspender buttons.
4. Safety snap on belt.
5. Two side and one hip pocket.
6. Wool lining.
7. Reinforced adjustable belt.
8. Midwestern's Special Vanitex fabrics.
9. Wide protecting flap.
10. Reinforced by rivets.
11. Cloth crotch pads for pole sliding.
12. Reinforced double stitched seams.

MIDWESTERN MFG. CO.

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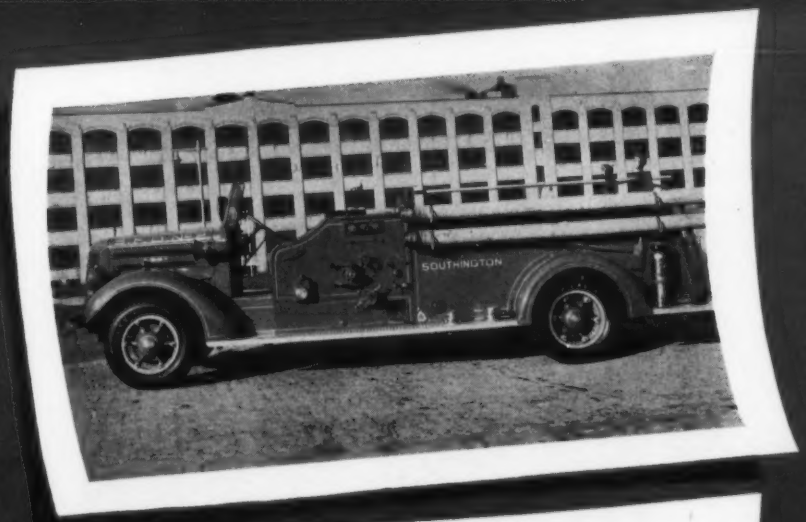
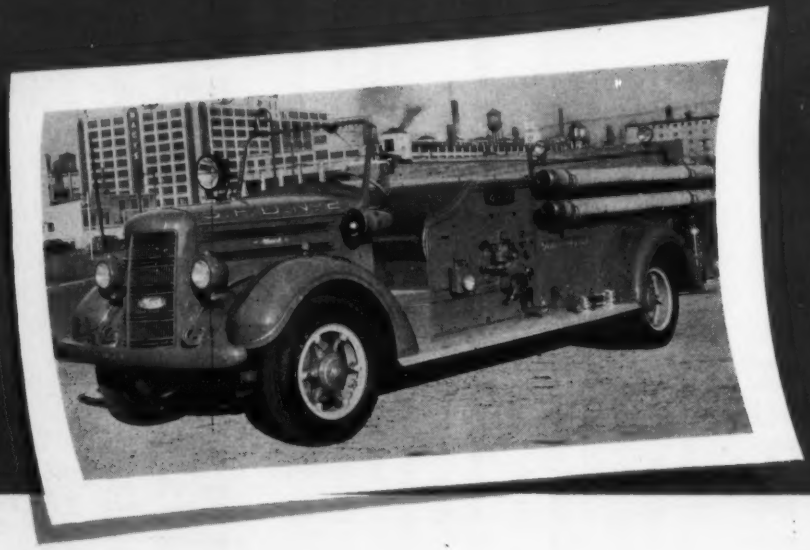
ANY WAY YOU LOOK AT IT, *a Mack is more fire truck. That's why the men who use them, and who know the importance of dependable fire-fighting equipment, have been looking at Mack for 32 years with so much satisfaction!*





If your community needs additional fire-fighting equipment or replacements, and if you can obtain permission from the War Production Board, think of Mack. Remember, Mack Fire Apparatus is backed by the greatest engineering resources in the industry.

MACK MANUFACTURING CORPORATION, FIRE ENGINE DIVISION, EMPIRE STATE BUILDING, NEW YORK 1, N. Y.

Mack
FIRE APPARATUS

ARMY-E-NAVY

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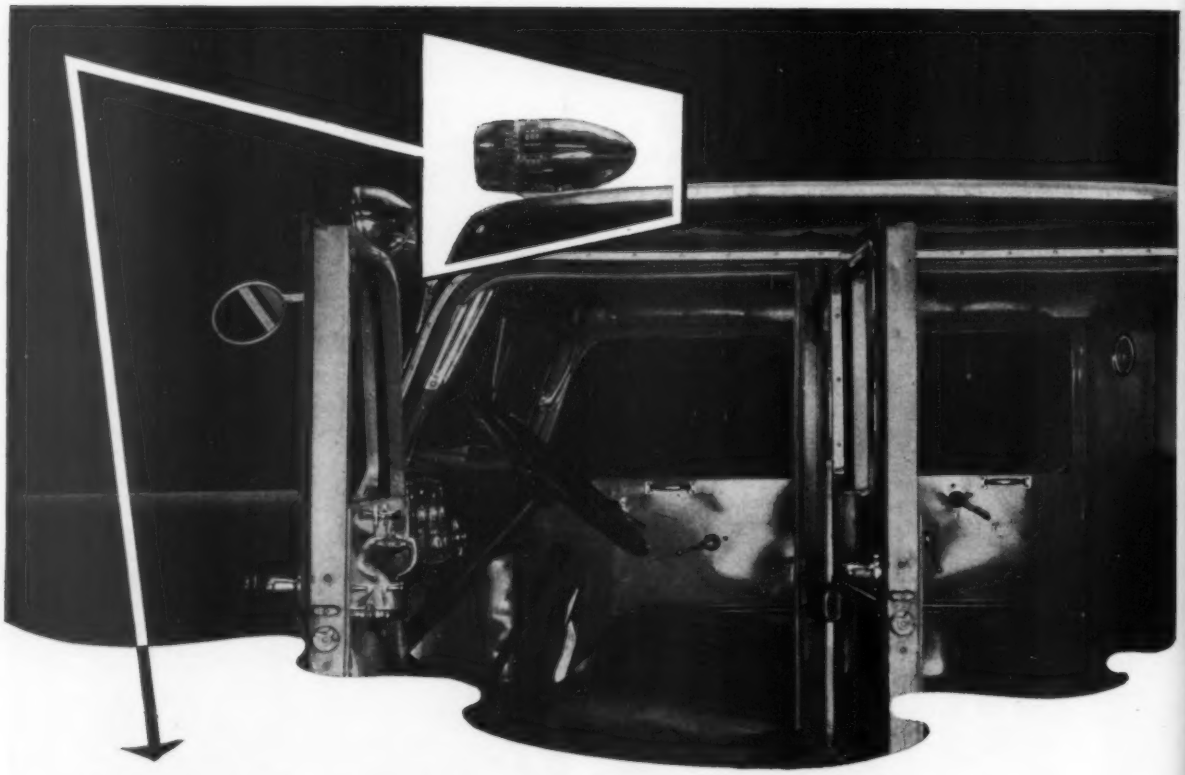


GOOD JUDGMENT PUT IT THERE

Shown above is one of Cleveland's new triple combination pumpers. It is one of 13 new pumpers built by the Buffalo Fire Appliance Corporation. Each one is equipped with a FEDERAL Model "77" Doubletone Coaster Siren.

Good judgment directed the selection of these FEDERAL Sirens which have a powerful, penetrating tone and a long roll. The Model "77" is actually two sirens in one—a high pitched penetrating tone, and a low pitched carrying tone—an exclusive FEDERAL feature—which assures the greatest possible protection for valuable equipment.

The FEDERAL line includes sirens for all conditions, services, and types of apparatus.

WRITE FOR BULLETINS, TODAY!

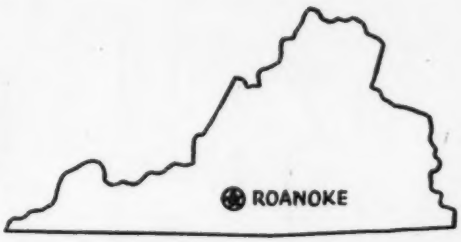
The FEDERAL Fury Exhaust Whistle is available as a warning signal in those communities which still prohibit the use of sirens under wartime conditions. Two new models of oscillating lights are also available for additional protection by a visual signal.

FEDERAL ELECTRIC CO., INC.

SIREN HEADQUARTERS

8702 So. State Street Chicago 19, Illinois

OREN



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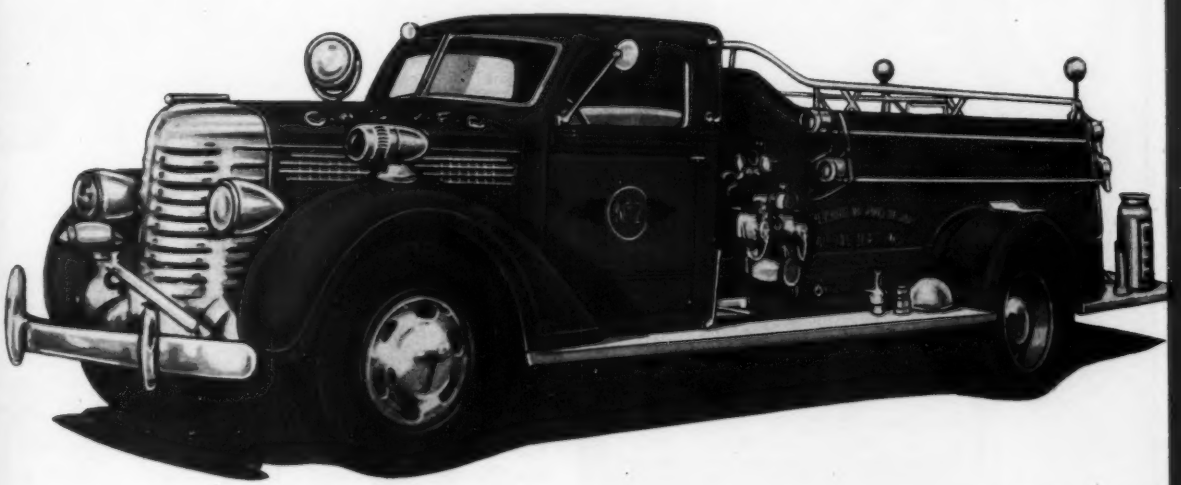
FIRE TRUCK MANUFACTURER

Serving Our Country Today!
Better Equipped to Handle the
Needs of Your Department Tomorrow!



An Oren Built for Gaithersburg Washington Grove Volunteer Fire Department, Gaithersburg, Md.
A complete 500 G.P.M., 2 Stage Pump, Triple Combination Unit.

★ OREN builds a complete line of FIRE TRUCKS ★
—Write for full information.

OREN FIRE APPARATUS COMPANY

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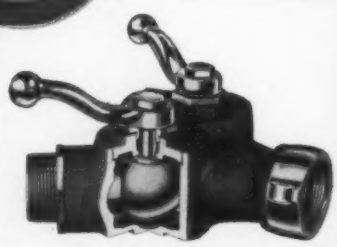
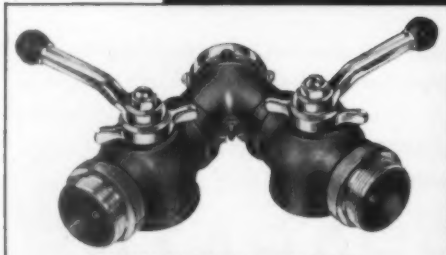
AKRON FULL FLOW "BALL TYPE" VALVES

AKRON "BALL TYPE" SHUT-OFF NOZZLE AND PLAY PIPE ASSEMBLY



AKRON FULL FLOW "BALL TYPE" VALVE SIAMESE



AKRON SIAMESE ASSEMBLY

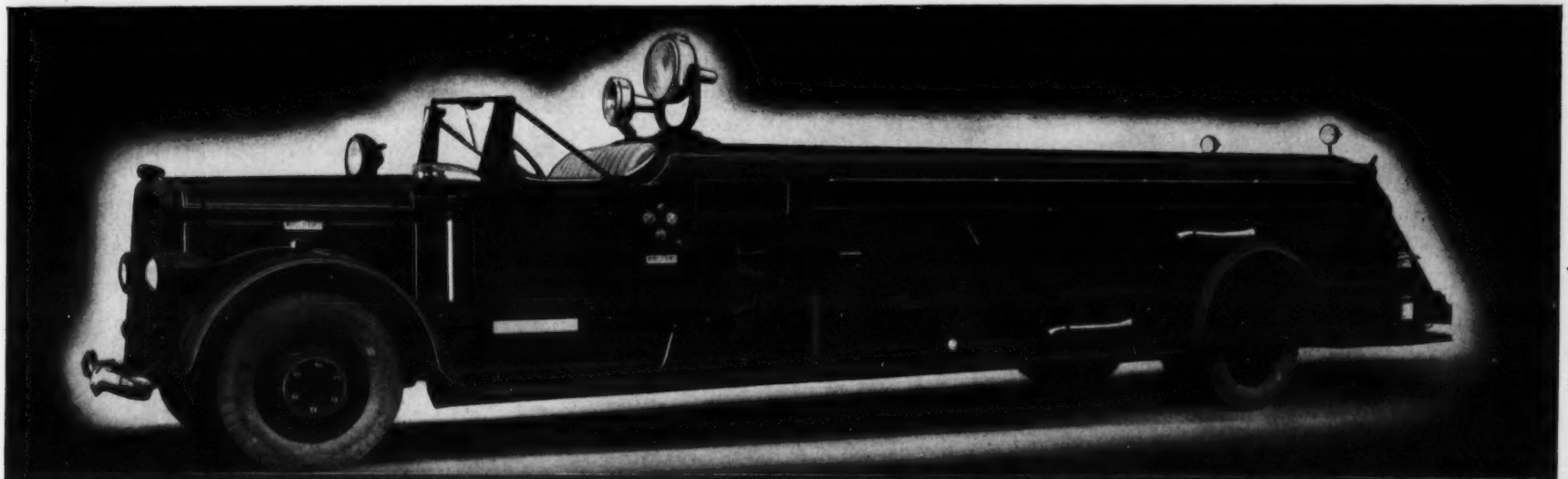
MATCHLESS DESIGN

Outstanding principles of design and the rugged construction of Akron "Ball Type" Shut-off Valves are very important to you. Among their superior features are: • Continuous sleeve type valve seat held in place with retaining nut. Easily removable for regrinding. • Inner channelling which permits complete drainage thru petcock in base of valve • Perfect alignment of waterway retained by a positive stop. • Noted for ease of operation. Tests prove that 10 lbs. exertion on the handle opens or closes valve against 700 lbs. water pressure.

Numerous exclusive construction features of Akron Full Flow "Ball Type" Valves are covered by numerous patents.

AKRON BRASS MFG. COMPANY, INC.
WOOSTER, OHIO

AKRON BRASS
FIRE FIGHTING EQUIPMENT



★ WARD LaFRANCE ★

Quick Facts

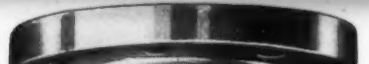
About Model 56 Q D Enclosed 500 Gallon Quadruple Ladder Truck Illustrated:

- LENGTH: 31 ft., 3 in. (no ladder overhang).
- WEIGHT (empty): 14,900 lbs.
- WHEELBASE: 242⅜ in.
- HORSEPOWER: 150.
- PUMP: 500 G.P.M. two-stage centrifugal.
- BOOSTER TANK: 150 gallons.
- HOSE CAPACITY: 250 ft., ¾ in. hose; or 150 ft. of 1 in. Reel in rear.
- LADDERS: Ten — up to 50 ft., 3 section.

BECAUSE of wartime restrictions, the production of certain types of fire equipment, including the model shown, cannot be resumed until after Victory. Meanwhile, we're turning out Heavy Wrecker Units, like the one shown at the left, to help speed that day. We suggest that you discuss your department's needs with our engineers now, so we may fill them at the earliest possible moment.

WARD LaFRANCE
TRUCK DIVISION
ELMIRA, NEW YORK

Please mention FIRE ENGINEERING *when writing advertisers*



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Save Time!

Save Money!

Save Space!

KLEERLINE COUPLINGS

Will Do All THREE At Once

THESE three problems are constantly before every fire chief. To get to a fire as quickly as possible, to get his hose lines out and ready for duty with all possible dispatch — KLEERLINE COUPLINGS help to do this in many ways. They cannot snag — drag — delay or catch the hose in handling from the chute to the fire. Their precision-turned threads make for easy coupling and uncoupling in the event of a broken line or other emergency.

All hose is valuable today, as well as expensive when available. The hose you now have must be made to live out its full life of usefulness. Hose must be protected against cuts — bruises — strain or wear. Protecting hose is not only patriotic but economical. KLEERLINE COUPLINGS are a positive insurance on this to any department.

KLEERLINE COUPLINGS prevent delay in repacking hose on truck and, because of their smooth construction — no projecting lugs, etc. — it is possible to pack more hose in the same space.

REPLACE ALL OLD COUPLINGS WITH KLEERLINES.

Demand them on all new hose. The same spanner designed especially for KLEERLINE COUPLINGS will fit any other coupling you may have on your truck now.

★ **INQUIRIES INVITED FROM RESPONSIBLE DEALERS IN FIRE EQUIPMENT** ★

ANDERSON FIRE-FIGHTING EQUIPMENT COMPANY, INC.

407 WEST 36TH STREET, NEW YORK 18, N. Y.

MEdallion 3-3200

It will help if you will mention FIRE ENGINEERING *when writing advertisers*

YOU MUST HAVE 800 LBS.

for High-Pressure Fog Fire Fighting!

FIRES KNOCKED DOWN *10 to 35 times faster with FMC High-Pressure Fog Fire Fighters.*

(Right, above) **THE PUMP** *that has revolutionized fire-fighting technique.* (Right, below) **FOG FIRE GUN** *graduates from straight power stream to close-up fog. For use only with 600 lbs. pressure or more.*

Only FMC Packs Needed Punch to Hold 600-lbs. Nozzle Pressure

The heart of the FMC Fog Fire Fighter is its exclusive high-pressure pump. It easily develops 600-lb. nozzle pressure, and breaks up water so fine that one gallon, properly used, can give you the fire-quenching efficiency of 35 low-pressure gallons.

If *pump* pressure is not high enough to start with, it is not possible to get the 600-700 lb. nozzle pressure that is needed to deliver the superfine FMC fog that puts out fires so fast with no water damage and no water shortage.

Proved on hundreds of fires all over the country, FMC High-Pressure Fog Fire Fighters are not to be confused with any other method. There is nothing comparable to them. Write for full details to John Bean Mfg. Co., Lansing, Michigan, or Bean-Cutler Division, Food Machinery Corporation, San Jose, Calif.

FMC FOG FIRE FIGHTER TRUCK. *One of several low-cost units. Carries own water and equipment.*

FMC *Original* **HIGH-PRESSURE FOG FIRE FIGHTER**

FOOD MACHINERY CORPORATION

JOHN BEAN MFG. CO., 709 HAZEL ST., LANSING 4, MICH. • BEAN-CUTLER DIVISION, 409 JULIAN ST., SAN JOSE, CALIF.

BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 50 YEARS

We shall appreciate your mentioning FIRE ENGINEERING *when writing advertisers*

WATER FIGHTS OIL FIRES LIKE THIS SUCCESSFULLY

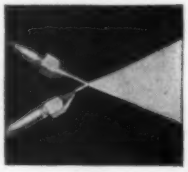
EVEN WHERE WATER LIKE THIS FAILS

Break water — your cheapest, most plentiful fire-fighter — into tiny particles smaller than spray . . . and you have WaterFOG — your cheapest *and* best extinguisher of oil fires!

You wouldn't play a *stream* of water on a flammable liquid fire — even *spray* is often not effective. But gentle WaterFOG sponges up heat so much faster . . . that many firms have given up other more expensive, less certain methods to return to *water*.

WaterFOG's success is due to water's cooling power being proportional to total surface exposed to heat. WaterFOG presents far more surface to the fire — and for a longer time (due to its lightness) than an equal quantity of water in any other form.

WaterFOG first quenches the flames. Then, floating over the liquid, it cools that, too, retarding further vaporization. Finally, changing into steam, it smothers the fire, cutting off flame-feeding oxygen. All without spreading or agitating the fire! Less water is needed, saving water damage. "Flash-back" is prevented. And WaterFOG is safe on electrical fires. Write today for Bulletin 123.



WaterFOG is created by impinging streams from specially-designed Rockwood nozzles — engineered in correct particle size, fog pattern, and velocity for your conditions. Fixed piping installations, hose nozzles and applicators. Rockwood installations approved by Underwriters' Laboratories and Associated Factory Mutuals; used by Navy, Coast Guard, hundreds of industrial plants. EXECUTIVES! colored movie (16 mm.) showing tests of Rockwood WaterFOG, is available.

ROCKWOOD SPRINKLER COMPANY
54 Harlow Street, Worcester, Mass.
Specialists in Fire Protection Engineering, Equipment and Installation since 1907

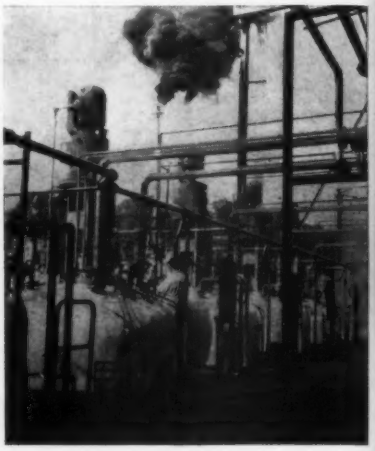
ROCKWOOD WaterFOG

Water Engineered by Rockwood Cools, Confines, Smothers Oil Fires

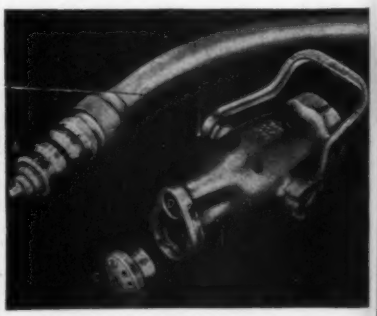
Complete WaterFOG Fixed Piping Installation Protects Reactors

This photograph illustrates the use of a Rockwood-engineered system of WaterFOG fire protection — consisting of fixed piping, WaterFOG heads, valves, and automatic control devices.

In planning such systems, Rockwood engineers (authorities on hydraulics, as applied to fire protection) consider all factors involved in each hazard — spacing of heads, distance between heads and hazard, obstructions, etc. — in order to arrive at the most complete protection.



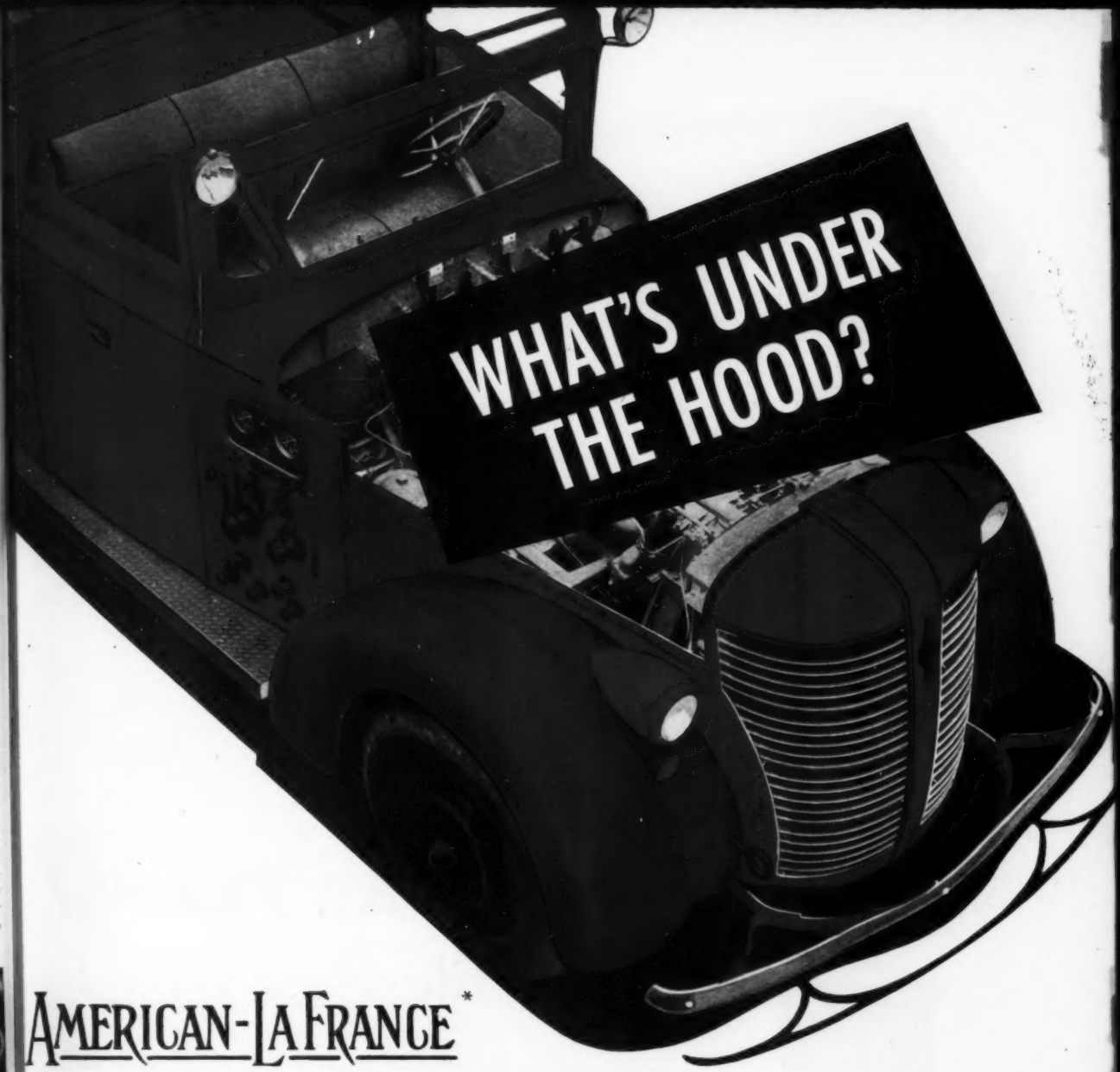
WaterFOG fixed piping installations are being used to assure both the prompt detection and the quick, automatic extinguishment of fires in fuel oil, kerosene, mineral spirits, and other flammable liquids. Typical WaterFOG-protected hazards include loading racks, transformers, quench and dip tanks.



Portable WaterFOG Equipment for Regular Fire Hose Lines

This photograph shows (A) WaterFOG applicator which discharges low-velocity WaterFOG in ball shape; and (B) SG-40 Nozzle to which applicator is attached. With applicator removed and FOG Tip (C) inserted, SG-40 Nozzle will discharge either high-velocity WaterFOG with considerable forward projection, or from (D), a straight stream for attacking inaccessible places or rooting out deep-seated fires.

The 1½" SG-40 Nozzle takes 4' or 10' applicator; the 2½" size takes 12' applicator.



AMERICAN-LA FRANCE*

Power of course; smooth, responsive, dependable V-12 power for every emergency. Its the power at the rear wheels that counts when rapid acceleration is needed. Its the uniform power flow of the V-12 that flattens these hills. Its the V-12 that provides a big reserve capacity for that call for extra water. With limited equipment available in almost every fire department V-12 reserve power is helping to keep fire losses low. Designed specifically for fire service, the AMERICAN-LA FRANCE V-12 has proven itself in 14 years of fire service as worthy of exclusive use under the hood of *the world's finest fire engines*.

* LA FRANCE-FOAMITE in Canada

AMERICAN-LA FRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U. S. A.

LA FRANCE FIRE ENGINE-FOAMITE LIMITED
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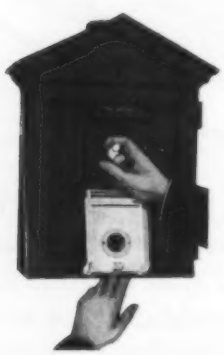
Be sure your

POST WAR PLANS

are on file . . . . . !



Inadequate fire defense is indicated when a citizen must traverse a greater distance to send an alarm than is required by the recognized standard of box distribution.

EVERY municipal department will be clamoring for a share in post war developments. Intelligent fire officials will make sure now that their plans are ready and on file. Such plans should not only be adequate, but to be effective, must be included in any municipal program of post war activity.

These plans should call for new systems, where none existed, additional boxes where communities have outgrown their pre-war boundaries, and, in all cases, adequate installations as recommended by the recognized standard of box installation.

Remember your department is inactive until an alarm is sounded and delayed alarms have caused the majority of the huge pre-war fire losses. Be sure your plans are adequate. Consult our engineers, our experience gained over a period of 75 years in the field of fire alarm signalling is fully placed at the disposal of every fire official.

THE GAMEWELL COMPANY
Newton Upper Falls, Massachusetts

FIRE ENGINEERING

FEBRUARY, 1944 VOL. 97. NO. 2

With the Editor

Purchase Your Apparatus Now

After all the trouble fire departments have had with priorities during the past two years, it may seem inconsistent for us to urge them to buy new fire apparatus now.

Yet this is good advice, for several reasons.

First: Many cities are in better financial condition today than they have been for several years. Others, which have not enjoyed relative increases in income or reductions in expenditures, will be worse off after the end of the war, for revenues will drop and relief expenditures will again grow. In either case, there is a much better chance of getting fire apparatus appropriations today than in the early postwar years.

Second: Fire apparatus factories have plenty of productive capacity available today for building municipal fire apparatus. Government orders (for Army, Navy, Lend-Lease and the Allied Nations) have been reduced greatly, and priority requests by cities have slumped during the past few months. Fairly prompt delivery of units can be promised cities, if apparatus specifications do not include unusual features for which parts are hard to procure.

Third: Apparatus as at present supplied, though stripped of some frills, is still excellent apparatus by all standards. No major change involving any essential part has been made in wartime fire apparatus.

Fourth: No major change in design will be made for the duration, nor possibly for some years thereafter. The majority of fire apparatus builders plan to follow the lead taken by pleasure car and commercial truck builders, who have already announced that no radical change will be made in their products when manufacturing is resumed full blast at the end of the war.

Fifth: The priorities situation has eased materially. Whereas a year and a half ago applications for priorities for fire apparatus greatly outnumbered pieces of apparatus available through allocation, a reversed situation is now beginning to develop. The last quarter of 1943 showed more pieces of apparatus available than the number covered by requested priorities. Thus today there is an excellent chance for any city really needing motor fire apparatus to obtain the necessary priority.

Even if a previous request for priority has been turned down, a new application may be filed. It will receive the same consideration as an application filed for the first time. In fact, it is recommended that new applications be filed every ninety days if previous applications have been denied, and providing the applicant has a real need, as well as a just claim, for the desired apparatus.

Because of the easing up of the priority situation, the availability of production capacity in fire apparatus factories, and the other factors listed above, it is urged that fire departments enter the market for needed new apparatus without delay. The chances of getting it during the next few months are probably better than they will be for a long time thereafter.

Fred Oberpeil

Handling Ship Fires

By JAMES J. DEASY
Battalion Chief (Retired), New York Fire Department

FIRES aboard ships are far more difficult as problems of control and extinguishment than fires in buildings. The concentrations of highly inflammable, and at times explosive, cargoes in confined and inaccessible portions of vessels, combined with inadequate venting mediums, are the major difficulties encountered by the Fire Department.

Then we have the problem of getting streams directly on burning materials, or cargo or other burnable substances that may be exposed to fire. Ships provide more than the usual number of concealed spaces for the travel of fire. Piers to which such vessels may be moored, or adjacent piers, the contents of such piers, barges, lighters, tankers supplying such vessels or other ships, weather, wind, tide and harbor traffic are all factors which have a bearing on the handling of a ship fire. Add to the foregoing the fact that in almost every harbor on the Atlantic, the Pacific and Gulf Coasts there are abnormal concentrations of ships that are being loaded or unloaded or awaiting convoy, and the magnitude of the task can be appreciated. The combination of adverse conditions would make this type of fire one that demands not alone initiative, judgment and directive ability on the part of ranking fire officers, but also a knowledge of conditions and their potentialities. Such an advance knowledge would provide them with a grasp of a situation that could not be obtained were they to await a fire call to a ship fire before checking up on surrounding conditions.

Sizing Up Situation

It would be a rash person who would attempt to lay out a set program that would be applicable to fire control operations at every ship fire. No two ship fires are ever alike; and the type of vessel, the cargo, location of fire, the presence or absence of fire control equipment aboard the vessel, place where vessel is moored, surrounding exposures and the many other factors mentioned previously would be the factors which would determine the procedure to be followed in bringing the fire under control. "Size Up" of such fires on arrival cannot usually be conducted by the firemen, because of their lack of information on the vessel, its equipment and cargo. Much of such knowledge must be obtained from the ship's officer on arrival or from the ship's manifest. Information obtainable from the ship's officer on arrival should include:

(a) Exact location of fire;

(b) Whether or not ship's crew, longshoremen, stevedores, mechanics making repairs, passengers (gun crews on vessels carrying war matériel), are all accounted for, if they were known to have been aboard previous to start of fire.

The following additional data must also be obtained from ship's officer: nature of cargo, method of trimming ship (whether ballast tanks or similar installations); whether vessel is equipped with watertight bulkheads separating various cargo holds; cargoes in holds adjoining fire area; if vessel has sufficient steam up to navigate, to operate various auxiliary equipment (i.e., pumps, donkey engines, lighting systems, fire lines); if the engine room is tenable; whether the vessel is loaded or light, or loading or unloading; location of coal or oil bunkers; type of fire control system (steam, foam, CO_2); if operative, has it been used, where, how, and for how long.

Many vessels have refrigerating systems, also air conditioning systems, that might be affected by fire and result in release of dangerous gases, and the ducts may provide a medium of conducting fire elsewhere. Many vessels have sprinkler systems and, in some instances, standpipe fire lines. These things, too, must be known by the fire officer.

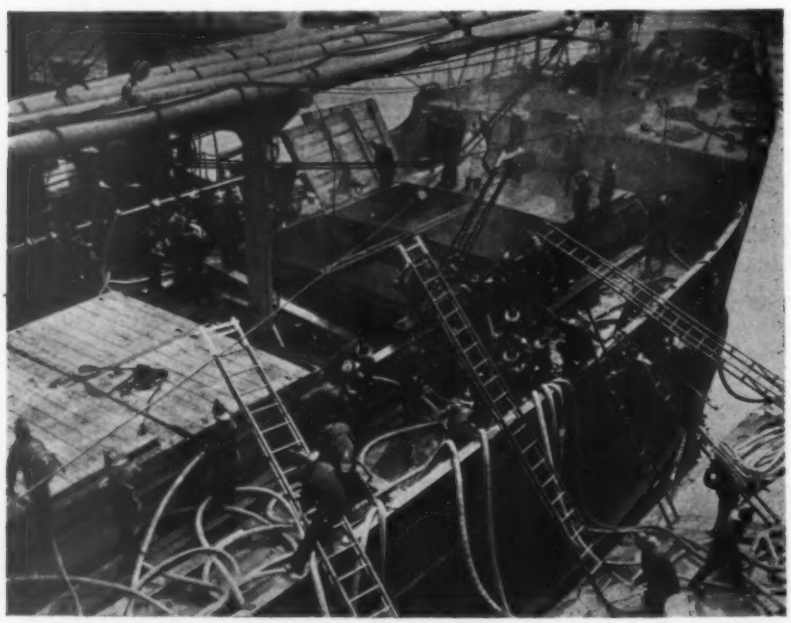
One could go on indefinitely outlining the many details that the fire officer arriving at a ship fire must procure by immediate contact with the ship's officer or chief engineer or one of the assistant engineers.

One detail that must be known to fire officers is just what extinguishing operations had been carried out previous to their arrival that they may not institute similar operations. Let me repeat that each and every one of the foregoing points can and must be obtained from some ranking officer abroad the vessel.

Necessary Factors

The following are the outstanding factors that are within the fire officer's immediate grasp: (a) State of tide; wind, its direction and velocity; ice in docks or on river or harbor to impede fire boat or other marine response; the removal of endangered shipping; manoeuvering in and around fire area; whether vessel is resting on river or harbor bottom; the type of such bottom (whether mud, silt or rock); if the vessel had a list previous to start of fire fighting operations, as in many instances where extensive repairs or installations are being carried out to facilitate space and movement much of this material is stowed on the side of the vessel farthest from the pier to which she is moored. Where the latter is the case, the use of water in fire control, if not relieved by ship's pumps, will mean that such lists will become more pronounced and, unless corrected, the dangers of a turn over are great.

In harbors, such as New York's, there is always the likelihood of a vessel lying on or near a submarine vehicular or passenger tunnel. Were such a vessel to sink, and rest on top of a tunnel, serious damage might be done to the tunnel. Where circumstances require that a



Fire Fighting Below Deck Is Hard Work

In freighters, where fire fighting operations must be carried downward to the fire, gruelling work is unavoidable. Men may have to enter areas charged with dense smoke, fumes, and even toxic gases, to say nothing of the high temperatures encountered. Here the fire fighters have brought a freighter blaze under control, despite its cargo of oil and cotton.

vessel be moved from a pier to beaching grounds, existing conditions and laws demand that the approval and direction of Captain of the Port or the Coast Guard supervising officer be secured, particularly as to where such beaching be done.

Tugboats of private companies are a material factor at such fires, both in the removal of endangered shipping and in utilizing their fire fighting equipment. Rarely if ever can such a vessel be brought to the beaching grounds under her own power. Local Police Marine Units are always necessary at such fires, to aid in policing river or harbor. One factor that may be encountered is the likelihood of an involved vessel being supplied with fuel oil by tanker moored alongside. It is important that such tankers be removed.

Empty Oil Tankers Are Hazardous

An explosion of vapors in emptied oil tanks of this tanker tore off deck and side plates. Presence of inflammable vapors makes fire fighting operations around tankers and "oil burners" especially dangerous.

Location of Fire Important

The materials which are burning or are exposed to fire might be explosive or might release toxic or highly flammable gases. One condition that materially determines tactics of attack is whether fire is in a hold, passenger cabins or bilges. The auxiliary appliances on exposed piers or shore structures exposed to fire should always be supplied with water under pressure, not alone to prevent, or control, the fire gaining in these areas, but when on the pier to which the vessel is moored they are a distinct aid in getting streams in or onto the burning ship. The determination of a close-up attack must of necessity be based on conditions that are present. Where cargoes affected or exposed to fire are of the explosive type, there is always the hazard of an explosion rupturing vessel's plates and, if below the water line, causing her to sink or turn over. The injury hazard to firemen operating is accentuated, along with danger to fireboats operating near or alongside.

Whether the fire is above or below the water line makes a great difference, as fire above the water line allows cutting out of a plate with torches and permits stream entrance if interior attack is impossible.

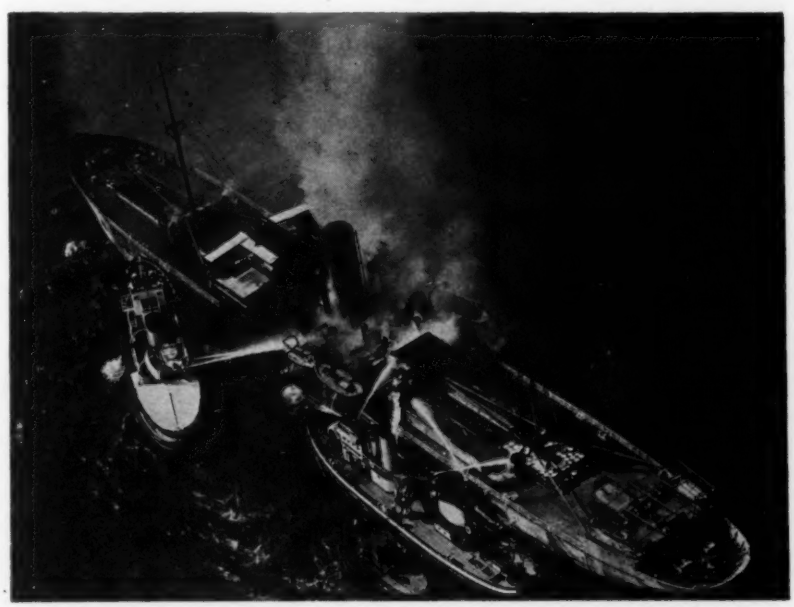
Ventilators leading to fire-involved holds can always be used for getting water to these areas if flooding must be resorted to. In some instances hatchways leading to such holds can be used for flooding operations. One fact must be ever borne in mind: to prevent fire in holds or vessel's interior gaining the superstructure, for once gaining this area, positions on vessel's main decks or higher decks become hazardous. Where the possibility of pilot house control of some essential fire fighting adjunct is present, denial of access to this control section because of superstructure fire complicates fire fighting operations.

Safety of Firemen Paramount

Safety of firemen operating in vessel's interior is an imperative need. The complicated companionways, stairways, the always present hazard of men operating lines being cut off must be guarded against. In many instances the use of masks or oxygen helmets, back-up lines and adequate lighting are essential requirements. Such lighting is always obtainable either from vessel's system, portable lights carried on fire apparatus, fireboat's searchlights, fire department searchlight apparatus, or utility, company's equipment. Where a department is equipped with a smoke ejector, occasion may arise where its use is advisable and advantageous.

The concealed spaces where fire may travel are those where a vessel has a double skin (though the double skin does not reach the whole way up) in the areas where refrigeration rooms are located, and bilges and stateroom walls. Where fire is involving fuel oil between double skin, test holes can be used to discharge foam onto the surface of the burning oil. While not an outstanding hazard the chance of ignition of waste oil on surfaces of rivers, etc., must be guarded against.

Good practice requires, where fire apparatus stretches lines down piers, that such apparatus be removed immediately on conclusion of the stretch. In some areas railroad tracks run down piers and there is always the chance of freight cars being present, either loaded or being unloaded. This demands instant removal by calling locomotives.



Fire Fighting Operations Continue After Ship Is Isolated

Where there is danger of fire extending to piers or other shipping, or where the fire gets beyond control, the burning ship is usually towed to shallow water, where it may be sunk without structural damage to the craft and where salvaging operations can be carried out without difficulty. However, fire fighting operations may be continued at the new location. Here a fireboat and a tug are at work on a burning Norwegian freighter.

Minor repairs aboard vessels may present the possibility of cylinders of compressed oxygen being present on piers exposed to fire. Only where safe practices are ignored will such cylinders be allowed aboard a vessel. Naturally where the latter condition is present, such cylinders must be removed; or where not possible to remove, then if exposed to heat or fire they must be cooled down with streams.

Laddering of vessels, and piers to which they are moored, is a required practice. Often an aerial can be raised to a vessel's bow from the land side. Sides of vessel must be laddered, and a very adaptable location for such laddering is the roof or upper pier levels (one thing must be borne in mind, all ladders must be lashed). At such fires, as a precautionary measure, medical and first aid personnel and equipment must be on hand, as injuries and smoke inhalation may require prompt action.

While few if any instances of arson or sabotage have been detected to date, this factor must be a point of observation, and preservation of any evidence found must be required. Where a civilian fire department emergency corps is organized, the members can be usefully employed in aiding in such operations that do not subject them to danger. Fireboats operating at such fires must be so moored that mooring lines can be easily slipped or cut if necessary to allow rapid removal when conditions demand.

To attempt to definitely state the exact methods of fire fighting at such fires is beyond the ability of anyone. It is sufficient to say that use of fog nozzles, foam, CO_2, heavy or light streams, and proper and efficient ventilation is dependent on the circumstances. Where radio is available to fire officers operating at ship fires, it provides a constant and positive source of communication between land and ship.

Conclusions

In conclusion, it should be pointed out that vessels should only be removed from the piers to which they are moored when cargoes are highly explosive or if the fire has gained such headway as to threaten the entire ship, or if the ship fire is seriously threatening pier or freight thereon. Once a ship is removed from its berth, land assistance is absent. Furthermore, there is possibility of a burning vessel getting away from its tow and drifting to other piers or shipping, and thus intensifying an already serious condition. While there are other and possibly equally important factors that the writer has not embraced in this article, in the main if the foregoing are taken into consideration and understood, if fire officers have that advanced knowledge of such fires and their possibilities, if they thoroughly grasp what they are up against and what they have available to combat it with, if they have some definite idea and knowledge of the various intricacies of ship's interiors, if they study previous fire fighting operations at similar fires, if they read and digest all that is written about ship fires and the numerous mechanical and technical improvements research and tests have brought forth in combatting ship fires, surely the control of such fires will be expedited.

USS Savannah Hit by Nazi Bomb

Struck by a German bomb on September 11, the cruiser USS Savannah rescued her casualties, brought a fire under control and continued to bombard the enemy's shore installations during the battle for Salerno. While wounded men were given treatment, their shipmates exerted every effort to patch up the stricken ship. A crewman aboard the vessel aims a stream of water down the smoking hole made by a Nazi bomb.

Business Section of Lunenburg, N. H., in Ruins

The civic center of Lunenberg, N. H., is a mass of ruins as the result of a disastrous fire on December 21.

Buildings comprising the business section, as well as some residences, all bordering the park, fed the flames as firemen from nearby towns assisted local units in the fight against the fire, with inadequate apparatus.

Five buildings were flattened before the blaze was finally stopped at the brick library building. The fire started in the garage or shed to the rear of one of the residences. The wind was of almost gale velocity and in less than two hours the four buildings east of the house was in flames.

At the time the crew of fifteen men from Lancaster arrived at about 5:20 p. m., only the Powers house was in flames, but there was no stopping the fire which caught the building in which were the store of Frank Corliss and the restaurant of F. E. Curtis, with tenements above. Next came the four-story Heights House. This was soon levelled.

Embers were carried across the highway to the Dorsie Pond store. Next in line came the so-called Bowker House.

This was as far as the fire had its way. Firemen had poured streams of water on the brick library building and that saved residences on the other side. All the water available was in a stream a third of a mile away and from this pumper crews from Lancaster, Littleton, St. Johnsbury, Gilman, Whitefield and Concord, Vt., got what water they could to combat the flames. They were successful in saving some property on the opposite side of the street at the corners of the park. Fully seventy-five firemen from other towns aided local volunteers.

A freak of the fire was when embers set fire to the steeple of the United Church on the opposite side of the park, some 150 yards from the burning building. Firemen were able to stop this fire without serious damage to the church.

As the fire spread, volunteers moved household furniture and merchandise from the threatened houses but when the fire was under control it was noted that much, if not all, that had been removed from the stores and houses had been ruined by the fire.

Eleven-Year Record Set by Fire Losses in 1943

Fire losses in the United States during 1943 amounted to $380,236,000, the highest in this country since 1932, according to estimates of the National Board of Fire Underwriters. The 1943 losses were twenty-one per cent higher than those for 1942 and were the highest for any year since the total of $442,134,000 recorded eleven years ago. The estimates are based upon incurred losses reported by companies which are members of the Board, plus an allowance for unreported and uninsured losses.

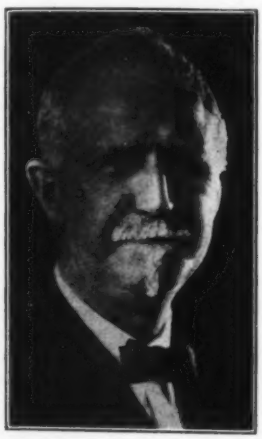
The 1943 losses were swollen to an eleven-year record by losses of $47,716,000 in December, which were thirty-one per cent higher than losses of $36,469,000 reported in December, 1942, and fifty-one per cent above losses of $31,647,000 in November, 1943. The December total was the highest for any month since March, 1942, when the figure was $49,189,000.

Financial Condition of Cities Improving Steadily

Reduction in Bonded Indebtedness Being Accomplished in Most Communities

By ROGER W. BABSON

TWO years of war have radically changed fiscal conditions in practically all cities and towns in the United States. in most municipalities income has risen, expenses have dropped or been held



Roger W. Babson

static, and debt has been reduced. A few years ago communities faced the problem of raising revenues to meet swollen relief rolls and of calculating to what extent debt might be increased to provide for essential capital improvements. Today, municipalities generally are flush with funds, but find difficulty in obtaining materials and manpower to extend water, fire protection and sewage services, or to erect needed public buildings. As a consequence, the financial condition of most municipalities has improved materially since Pearl Harbor.

Astute public officials are well aware that some of this improvement is more apparent than real. Some of the increased revenue represents non-recurring items. Lower current outlays do not fully reflect important deferred expenses. Communities that have maintained normal growth, to say nothing of those experiencing war-time booms, have been unable to carry out the usual extensions of water, fire and sewer services or other needful facilities. Such potential expenses hover over the municipal budget of the future.

The income of most municipalities is increasing as a result of booming business activity. The real estate tax is usually the bulwark of municipal revenues, so the high level of consumer income is bringing great improvement in tax collections on current accounts. Available figures indicate that only about 6% of current tax collections are now delinquent, compared with over 25% in 1933 and around 9% in 1939. Collections on old delinquencies have also picked up. Furthermore, the upward trend of realty values is facilitating foreclosure sales of delinquent property.

Where there has been a large influx of workers, the income experience of municipalities tends to vary widely. Some cities and towns are experiencing a sharp advance in realty values, assessments, and tax collections. In a few communities, however, lower tax collections have resulted from the transfer of large amounts of property to U. S. Government ownership for armament plants or for housing purposes.

Lower revenues are also the experience of some communties in states where all or part of the state-collected gas tax is apportioned to municipalities. Gasoline rationing is materially reducing the intake from this source. Furthermore, those states with high auto license fees have suffered a loss of revenue. On the other hand, those cities and towns deriving a substantial portion of their income from sales taxes, local income taxes or sharing in state collected income, license or liquor taxes have benefited.

There is a growing tendency among municipalities to attempt to seek new revenue sources in order that less dependence may be placed on the real estate tax. More and more states are helping out by apportioning a larger share of state collected sales, income, gas, liquor, and other taxes to municipal subdivisions. Charges are being instituted by a growing number of communities for such services as garbage collecting, sewage disposal, etc. The successful experience of some communities with parking meters has led to wide consideration of their general installation. Where other laws permit, auto license taxes and municipal gas taxes are being introduced. Detroit's effort to place a 20% tax on the gross revenues of local public utilities may well uncover a new revenue source if the tax is upheld in the courts. It is argued that this type of tax merely reduces the utilities' Federal tax bill and does not materially cut into their net income.

War Conditions Affecting Expenses of Cities

War conditions are having a widely varying effect upon the operating expenses of cities in various sections of the country. The high level of industrial activity, in the case of many individual cities, is bringing very few operating problems. The new residents are merely filling up existing facilities so that capital improvements or substantial increasess in operating expenses are not being required. In contrast are those communities whose populations may have increased several fold since the start of the European War, due to the establishment of shipbuilding projects, military camps, etc. For such boom communities, the solution of the problem of financing such capital improvements as sewers and schools, and of larger operating expenses such as those for expanded police and fire de-

We are especially pleased to present this article on the growing improvement of municipal finances, by Roger W. Babson; for there is none better qualified than he to discuss this topic.

As founder and present head of Babson's Statistical Organization, Inc., Mr. Babson has an intimate knowledge of financing by cities. In addition, he has gained, through his many years of association with the securities field, a priceless experience which gives assurance that the predictions he makes are quite certain to materialize. It may be recalled that in 1929 he stood practically alone in warning against the depression which was to come in the early '30's.

Guessing has had no place in his predictions; they have been based on sound statistical data plus a wide experience in the fields of finance and economics. The now famous "Babson Curve" of security values is but one example of the type of information utilized by him in determining the future trends of business.

Thus the following article by Mr. Babson is worthy of careful study.

—Editor

partments, has depended to a large extent upon the amount of Federal Government aid being received.

In between these extremes is the average city, which seems to have been successful in keeping down expenses in relation to income. Shortages of materials and labor are generally resulting in the elimination of capital improvements and construction not considered essential to the war effort. From 10% to 15% of the total normal expenses of the average American city of around 100,000 population is normally for construction or improvements. Some increase in this item of expenditure is probable as the war continues because the material situation will doubtless ease.

It is to be hoped, of course, that the end of the war will not find cities competing too intensely for materials and manpower in order to expedite capital construction. This would tend to accentuate inflationary trends. It would be preferable for such less urgent capital improvement program to be delayed until there is another period of acute business depression, such as may well come around 1950 to 1953.

Relief expenses during the 1930's took an average of about 10% of the expenditures of most cities. A high level of employment has reduced this expense materially. The prospect seems to be, however, that there will be more interruptions in factory schedules and activity during the coming year, so that relief outlays may increase somewhat.

From 50% to 60% of the cost of operating most cities is paid out in salaries and wages to such municipal employees as teachers, policemen, and firemen. The rising cost of living, competition for manpower from defense plants, and other factors have necessitated the payment of higher compensation to municipal employees. It is also being necessary to increase the outlay for necessary commodities, materials, and services.

In some cases, the increase in wage and salary payments offsets to a considerable extent the savings resulting from curtailed construction and relief payments. With the anticipated continuation of inflationary trends, wage and salary demands on the part of municipal employees are likely to become more pressing.

Treasury in Best Condition

The net result of the variations in income and outgo is that the average municipal treasury is now in the best condition in a number of years. Many smaller cities and municipalities are therefore reducing tax rates in the face of unchanged assessed valuations. The largest cities, on the other hand, are continuing to increase tax rates in order to offset the continued decline in assessed values. It is an open question whether the indicated upward trend in realty values will prevent a further reduction in the assessed value of numerous areas of land and property in some of the country's large cities.

As the war continues, and particularly if inflationary trends are more pronounced, most municipalities will doubtless find it more difficult to continue their recent good budget showing. Rising costs of labor and materials may well be underestimated. Such sources of income as payments of delinquent taxes will dry up. Rationing and manpower shortages may well force the closing of more and more business establishments.

City managements operating under laws which attempt to prohibit the accumulation of surpluses may be in a particularly difficult position in trying to make up budgets. It is gratifying to see that many states are removing restrictions on the accumulation of surpluses, while other states are passing or considering legislation which would encourage municipalities to accumulate reserve funds for post-war capital needs. The financial position of cities and towns in such states will be strengthened further if maximum advantage is taken of the new laws.

Summary of State and Municipal Financing (In Thousands of Dollars)

	New Capital	Refunding	Total
1943 (Est.)	152,000	264,000	416,000
1942	342,440	181,264	523,704
1941	518,105	434,509	952,615
1940	751,323	482,383	1,233,706
1939	930,822	195,079	1,125,901
1938	907,613	129,144	1,099,757

Note: Above figures do not include funds obtained by states and municipalities from any agency of the Federal Government.
Source: The Commercial and Financial Chronicle.

As indicated in the accompanying table, borrowing of new capital by municipalities is at a low ebb. New state and municipal offerings for new capital in 1943 are about 20% of the 1939 figure. This reflects in part inability to obtain materials and manpower which are necessary for capital improvements. Where small improvements are necessary and materials and manpower are obtainable, they have been financed in many cases out of income.

New bond issues for refunding in 1943 and 1942 were well below the average level of the two previous years. The improved treasury position of many municipalities is permitting them to pay off debt maturities which normally might have required refunding with new bond issues. Sinking funds are being refigured and replenished in many instances to take care of large maturities in future years. Some of the larger cities have been endeavoring to smooth out their debt maturity schedules by offering serial bonds in exchange for term bonds maturing some years hence.

Philadelphia is a good example of a city which has rearranged bond maturities and lightened its debt burden by a bond refunding program. Annual debt service charges increased from about 23% of the city's 1922 budget to nearly 40% in 1935. High interest bonds have been replaced by low interest bonds, maturities smoothed out and some debt retired. Debt service charge is now about 30% of the annual budget.

Cities Reducing Debts

These influences, together with the Federal Government's policy of financing improvements and extending financial aid under certain circumstances, have permitted most municipalities to reduce debt. Excluding New York City from consideration, the country's largest cities are estimated to have reduced their debt about three per cent in the past year. Medium sized cities cut debt about five per cent, but in the past five years the reduction has been about 16%. Smaller municipalities have made the best showing in debt retirement since 1930, but their debt retirement rate in the past three years has not accelerated as much as for the larger cities.

Bureau of Census figures indicate that the outstanding indebtedness of states and local governments had declined $540,000,000 or 2.7% in the year ended June 30, 1942, to leave the total at $19,643,000,000. The decline in the previous fiscal year was $47,000,000. As combined state and municipal debt increased $663,000,000 between 1932 and 1940, the reduction since 1940 has undoubtedly been much larger than the 1937-1940 increase.

Municipal Bond Prices High

Prices of municipal bonds, as measured by most of the commonly used "averages," have recently been at record highs. This follows an upward price trend which has been in evidence for many years. While the improving financial status of many municipalities has played a certain part in the price advance of their obligations, other factors have undoubtedly made a greater contribution.

Chief among these has been the growing demand for tax exempt issues from individuals and corporations in the upper and middle income tax brackets. The continued advance in income tax rates have steadily enhanced the value of the tax immunity carried by municipal issues. The differential in yield between taxable corporate and non-taxable municipal bonds has widened with each increase in the personal income tax rate, particularly in the upper tax brackets.

The importance of tax immunity to the price structure of municipal bonds has been vividly illustrated by the fact that the principal intermediate declines in bond prices in recent years have followed proposals that outstanding municipal issues be subjected to Federal taxation. From time to time, representatives of the United States Treasury and of other Government departments have made strenuous efforts to eliminate the tax exemption of municipal issues. In one direction, Congress has been asked to impose taxes on interest from not only new municipal bonds, but also from outstanding issues. The opposition of state and municipal authorities to such tax proposals has been successful at Congressional hearings. To date, there has been very little popular support for proposals that one of the few remaining vehicles of tax immunity for the wealthy should be eliminated even if larger taxes are to be levied on those in the lower income brackets.

Another effort is the Treasury's attempt to levy taxes on interest received from the Port of New York Authority and Tri-Borough Bridge Authority bonds. This case is now in the Courts and is considered in some legal quarters as an attempt to bring the larger question of taxing all municipal issues before the Supreme Court. The final Court ruling cannot be predicted. If the decision seems to open the way directly or indirectly for Federal taxation of municipal bond interest, the principal recent support of municipal bond prices would probably be eliminated.

Furthermore, the decline in new municipal offerings and the steady progress

in reducing debt have created a basic supply-demand situation which has favored the persistent rise in municipal bond prices. The U. S. Treasury's easy money policy has also been an important factor in maintaining relatively high prices for all types of bonds—U. S. Government, corporate, and municipal.

A concomitant of the high price level of municipal bonds has been a substantial change in ownership of such issues. Institutions like life insurance companies have been steadily selling off their holdings of municipal to both individual investors and corporations. Such guardians of public funds as sinking funds, pension funds, etc., have also sold their municipal holdings. The sellers have for the most part reinvested the funds received from the sale of their municipal holdings in U. S. Government issues.

Looking ahead to the post-war years, it is difficult to see how states and municipalities will be able to borrow on the favorable terms recently available.

A slump in bond prices, and a higher interest cost to borrowing municipalities would occur if municipal bond interest should be made subject to Federal Income taxation. Even assuming that municipal bond interest will remain tax exempt (this is not necessarily a safe assumption) there are likely to be sufficient changes in the recent situation so that municipalities will have to pay more for borrowed money.

The basic level of interest rates is likely to be somewhat higher during post-war years. There may be a smaller supply of .funds seeking investment. Savings from personal and corporate current income, as well as accumulated savings, are likely to be used for the purchase of consumers and capital goods which have not been available during the war years. The controls which have been exercised to maintain stable prices of U. S. Government bonds, and thus finance the war at low interest rates, are likely to be relinquished.

Demand for Funds To Grow

Demand for funds promises to grow, particularly if international financial arrangements give the United States the role of financing world rehabilitation and world trade through extensive foreign loans. Furthermore, it is not beyond the realm of possibility that a deliberate policy of tightening interest rates (with an accompanying lowering of bond prices) might be attempted by the monetary authorities in an effort to check inflationary trends.

The recent supply-demand status in the municipal bond field seems likely to be completely reversed. Lower Federal tax rates on the income of wealthy individuals and corporations are probable in the post-war era. This would tend to reduce the recent abnormal spread in prices and yields between tax exempt muincipals and taxable U. S. Government and corporate issue. The resumption of municipal borrowing to finance deferred capital improvements will bring a greater supply of municipal issues into the market. Basically, a large supply of municipal bonds and a smaller demand for them would bring lower than recent prices for municipal issues. In a declining market, the most speculative issues would have the largest slumps.

This conclusion does not mean that municipal issues will fall into disrepute compared with other type of fixed interest obligations. Efficiently managed municipalities should be able to borrow on terms which will not be as onerous as those prevailing in the years following World War I. It does mean, however, that individual municipalities must plan to pay more for borrowed money, particularly short-term money, than they have paid in recent years.

The lesson for those interested in furthering municipal fire protection **is to take the maximum advantage of the currently favorable market situation in municipal obligations.** Every effort should be made to refund callable bonds at lower interest rates and to arrange maturity dates properly. The best way for any individual municipality to improve the credit standing of its bonds is to reduce debt and to increase sinking funds. New and unexpected Court decisions are permitting municipal subdecisions in some states to redeem bonds which had previously been considered non-callable. Moreover, those municipalities which are first after World War II to spend money on fire protection will get the needed money easiest and will get the fire protection at the least cost.

"Authority" or "Revenue" Bonds

A type of issue which has been growing in popularity among both certain investors and municipalities is the so-called "Authority" or "Revenue" bond. While its terms may vary widely, this type of issue is generally secured only by the earning power of a municipal project like a toll highway, electric light plant or water works. "Authority" or "Revenue" bonds are generally not full faith and credit obligations of a city, are not usually payable out of ad valorem taxes and therefore offer a convenient vehicle for financing capital improvements without increasing the city's direct debt. Many "Authority" or "Revenue" issues are finding a ready market among wealthy investors and corporations, and may well continue popular with such investors as long as current high personal and corporate income taxes are in effect. Many city managements are studying the possibility of segregating city owned utilities in an "Authority" or "Revenue District," and bonding them separately in the hope that the city's direct credit status would thereby be improved over a period of time.

A word about the post-war problem of war-boom communities. Such communities have experienced a tremendous gain in population. Even the most carefully managed communities in this category, however, have been forced to expend large amounts of money for such capital improvements as schools, sewers, and water systems. It has often been necessary to expand materially ordinary public services such as police, school and health departments.

As was the case during World War I, realty values, assessments, and tax collections have spurted in most boom communities. This has permitted many cities to take care of the larger operating expenses. Federal aid has also been forthcoming in many cases.

The 1921-22 post-war period of readjustment brought a collapse in realty values and assessments along with the drop in armament activity in many boom towns. Tax collections slumped. Relief expenses increased. The decline in population left many communities in an overbuilt condition. Refunding instead of payment of debt became necessary. The advance in realty values and assessments thus far during the present war is not generally as pronounced in boom cities as it was during the previous war. The post-war readjustments may, therefore, be somewhat milder.

Of course, some communities will hold much of their war growth. Others will lose all of their war growth and probably more. Unless post-war trends are exceptionally clear, however, it behooves officials of boom towns to avoid borrowing as far as possible for capital improvements; to arrange debt maturities so that there will be no large amounts of maturing bonds in individual years; to maintain high tax rates during the boom period so that the temporary population will pay its just share of higher expenses and will help build a reserve fund; and to be ready to cut operating expenses drastically at the first sign of any slump in business activity and of declining payrolls.

The post-war financial status of the average municipality will depend to a large extent upon its management during the remainder of the war period. Good fiscal management can generally avoid financial troubles in the face of basic economic difficulties. On the other hand, poor financial management can bring trouble even for those communities which now seem favorably situated economically.

The high level of municipal bond prices has probably obscured the poor basic financial condition of some municipalities, particularly the larger cities. It has perhaps been too easy to sell bonds at favorable prices to fund deficits or to refund maturing issues. Some of these large cities are increasing assessments and tax rates to such high levels that new construction is discouraged, industries are being lost to other communities with lower tax rates, and old property is torn down to save taxes. The tax levy is nevertheless held up in order to maintain essential services. In such cases, courageous and efficient city managements will have to take the bull by the horns and break the vicious cycle. The alternative may be acute financial trouble when the bond market declines or there is another business depression.

Funds Should Be Earmarked for Fire Protection

By and large, however, the combination of larger revenues, controlled expenses and reduced debt is placing most municipalities in the best fiscal condition in some time. They should have the financial strength to play a large part in helping to solve the social and economic problems which will arise in the readjustment period after the war. Believing that increased fire protection is now one of the greatest needs facing most municipalities, I strongly urge that fire chiefs use the present time to ear-mark funds to be spent for such uses as soon as labor and materials are later available.

Practical Training for Auxiliary Firemen

By FRED SHEPPERD
Editor, FIRE ENGINEERING

IN this installment of the series of articles on "Practical Training for Auxiliary Firemen" is discussed drafting of water.

Q. What is meant by suction, in connection with drafting of water?

A. Suction may be termed the reverse of pressure, the same as pulling, the reverse of pushing. But the term suction is misleading. The conception of sucking water as the act of pulling or drawing water is erroneous; for to draw or pull an object prescribes the necessity of having some form of connection to it. In the case of sucking up water, what is really done is to reduce the air pressure in an airtight vessel in direct communication with a source of water supply, by removing the contained air, and thus to enable the atmospheric pressure outside to force the water into the vessel.

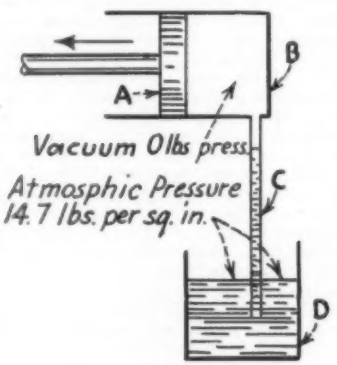


Fig. 1

Q. Specifically, how does a pump raise water when drafting?

A. Reference to Fig. 1 herewith shows how a pump lifts water when drafting. A tightly fitting piston A in cylinder B is moving in the direction indicated by the arrow. For purposes of illustration we'll assume that this piston is able to create a perfect vacuum in the cylinder. Thus the pressure within the cyinder, to the right of the piston, is zero pounds.

The cylinder is fitted with a pipe C, which has been submerged at its lower end in water in container D.

The container is open to atmospheric pressure, and therefore the atmospheric pressure over the surface of the water in container D is 14.7 pounds per square inch.

The pressure in the cylinder B is zero. Thus the atmospheric pressure will force water up through the suction pipe C into the cylinder.

This is the principle by which water is lifted when drafting.

Q. To what height theoretically can a pumper lift water by suction?

A. Several factors determine the maximum height to which a pumper can lift water by suction. First, the ability of the pump to create a vacuum, which depends upon the tightness of the parts of the pumps; next, the air tightness of all connections; third, the atmospheric pressure at the location at which the pump is being operated.

Q. Assume atmospheric pressure is 14.7 pounds per square inch, and that the pump can create a perfect vacuum; assume further that all connections are airtight. To what height can the pumper pump water under these conditions?

A. A pressure of 1 pound per square inch will raise water a height of 2.304 (this figure is based on a weight of 62.5 pounds per cubic foot of water. The actual weight of water is approximately 62.4 pounds per cubic foot, but the former figure is used because it simplifies calculations). Assuming that each pound pressure raises water 2.304 feet, an atmospheric pressure of 14.7 pounds per square inch will raise the water 14.7x2.304, or 33.8688 or 33.9 feet approximately.

Figure 2 illustrates a typical setup of pumper when taking suction. As will be noted in the sketch, the pressure on the surface of the water is 14.7 pounds per square inch. In this particular problem it is assumed that the pumper is able to create a perfect vacuum, and therefore the suction hose from the pump down to the water has zero pressure within it. The 14.7 pounds pressure will therefore force the water up into the hose, because there is no pressure to resist it, and the maximum height to which it will raise water is, as noted above, 33.9 feet.

Q. As no pumper can create a perfect vacuum, and as there is apt to be some air leakage in the connections, what would be considered a fair height to which water could be raised by suction?

A. 25 feet.

Q. Has water ever been lifted by suction to a higher elevation than 25 feet?

A. Yes. There are instances on record where pumps have operated lifting water 28 feet, and have continued to operate under these conditions for prolonged periods.

Q. What effect have changes in atmospheric pressure upon the ability of a pump to lift water by suction?

A. As the atmospheric pressure becomes less, the height to which water can be lifted by suction is also reduced. This is because the pressure on the surface of the water is less, and therefore the water can be forced to a lesser distance vertically through the suction hose.

Q. What effect has elevation of a city upon the ability of its pumpers to draft water?

A. The higher a city is, the lesser the distance a pumper can raise water by suction. The reason for this is that as higher elevations are reached, the atmospheric pressure lessens. For instance, at Denver, Colo., where the elevation is approximately one mile, the atmospheric pressure is in the neighborhood of 12.1 pounds per square inch.

Q. In what way does the air leakage into connections of suction hose or intake on pumper affect its ability to draft water?

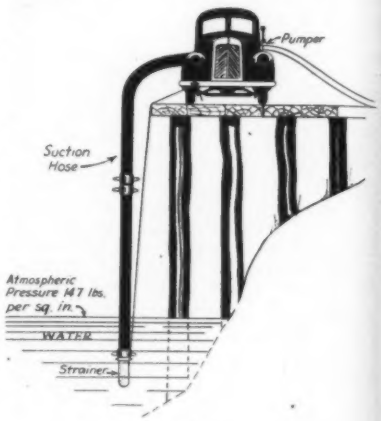


Fig. 2

A. Before a pumper can draw a supply of water to its pump, it must first exhaust the air in the suction hose. If serious air leaks occur in the suction hose or in the suction connection on the pumper, the pump may be unable to create the necessary vacuum to raise water. Under these conditions the pump may not be able to draw any water at all.

Q. What remedy would there be for this condition?

A. Tightening up of all connections to make sure they are airtight.

Q. If connections are tight, but pump fails to receive water, where may the trouble be located?

A. The trouble may be with the strainer, which may have become clogged by leaves, or other debris picked up beneath the surface of the water. An examination of the strainer will quickly disclose this condition. Incidentally, when putting a pumper at suction, a rope attached to the strainer is kept taut to prevent the strainer from touching bottom and picking up debris. It is important that the strainer be kept clear of the bottom of a body of water unless there is absolutely no danger of becoming clogged from debris, such as would be the case when drafting from concrete cisterns or other source having no debris along the bottom.

Q. Can all three types of pumps, namely, poison, rotary gear and centrifugal, lift water by exhausting the air in the suction line?

A. No. Only positive displacement pumps, as commonly found in the fire service, can establish a flow or lift water by exhausting the air from the suction line.

Q. If this is the case, how do centrifugal pumps take suction?

A. The majority of centrifugal pumps are fitted with small priming pumps of the positive displacement type, which create the necessary vacuum to bring the water up to the centrifugal pumps. Once the suction line and pump housing of a centrifugal pump are filled with water, and the pump placed in operation, it will continue to draft water.

Q. What types of positive displacement pumps are used to prime centrifugal pumps?

A. Two types are commonly used for this purpose, namely, the rotary vane pump and the internal gear rotary pump. The suction side of the priming pump is connected directly into the casing of the centrifugal pump so that, when the priming pump is operated, a vacuum is created within the centrifugal pump and water rises, filling the pump. Once the pump is primed, the prime is maintained by engaging the impeller of the centrifugal pump, and the priming pump is then disengaged. Usually the priming pump discharges air first, and then water, underneath the machine. When the water shows from this discharge, it is indication that the pump is primed and ready to operate.

Q. Is priming of centrifugal pumps accomplished by any other means than by small priming pumps?

A. Yes. Two methods have been used for priming centrifugal pumps in addition to the small priming pumps. They are: priming by vacuum and priming by utilizing the velocity of exhaust gases from the exhaust manifold.

Q. How is a pump primed by vacuum?

A. In the vacuum method of priming a centrifugal pump, advantage is taken of the natural vacuum created by the alternating compression and expansion stroke of the piston, and the valve action in the operation of the gasoline motor. The principle on which this is based is the same as is involved in the operation of the vacuum type of windshield wiper. When the gasoline motor is operated, the action of the pistons and valves tends to draw air from the intake manifold into the gasoline mixture entering the cylinders. Thus the connection between the intake manifold and the pump casing is subjected to a vacuum, and since the centrifugal pump has a continuous waterway between the suction intake and the discharge outlet, the entire pump assembly and suction tubes are eventually subjected to a vacuum, causing water to rise within the tube and fill the pump. The priming connection is made to the intake manifold. From here a tube runs to a priming valve reservoir which is fitted with a float valve. A connection from the priming valve reservoir passes into the housing of the centrifugal pump. As water is raised by the vacuum created at the intake manifold, it enters first the pump and fills the pump housing and the overflow enters the priming valve reservoir. Here the float valve is actuated when water reaches a predetermined level in the reservoir and closes the port leading to the tube which reaches the manifold. Thus the water is prevented from entering the intake manifold, which would be troublesome enough to say the least.

Q. How does the exhaust primer work?

A. The exhaust primer utilizes the exhaust gas velocity in the exhaust manifold of the gasoline engine. These gases are directed through a device very similar to an ejector. The ejector consists of a venturi valve to which a connection is made from the pump casing. When the control valve is opened, the pressure of the exhaust gases escaping through the venturi causes a suction pull in the connection to the pump and eventually withdraws all the air from within the casing, thus priming the pump. The exhaust manifold is so designed as to cut itself out as soon as water has filled the pump casing.

Q. What is the purpose of a churn valve on a positive displacement pump?

A. Each revolution of the gears in a rotary pump or each stroke of a piston in a piston pump discharges a definite amount of water, for these pumps are of the positive displacement type. When a pump is operating, should the nozzle be closed the pump would be instantly stopped and the engine stalled unless some means of taking care of the discharge were provided. To enable a pump to operate after the shut-off nozzles are closed on the hose line, a churn valve is provided. This valve regulates the flow between the intake and the discharge sides of a pump through a bypass. Thus if it is desired to have the pump continue to turn over while no discharge from the line is permitted, the churn valve is opened, and the water flows from the discharge side of the pump back to the intake side through the by-pass and thus flows through a closed circuit. The plain churn valve is simply a manually controlled valve placed in the by-pass between the suction and discharge sides of the pump.

Q. Is the churn valve used for any other purposes than that described in the previous question?

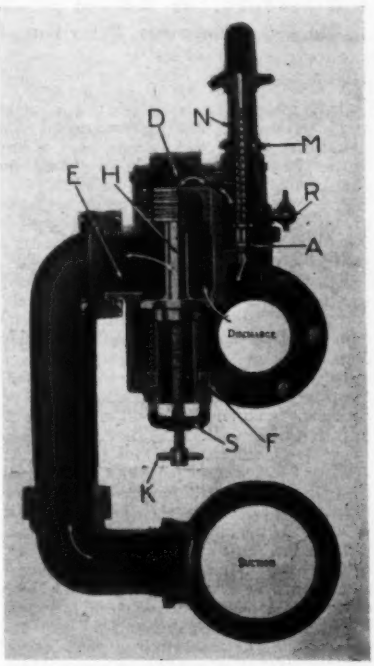


Fig. 4

A. The by-pass and churn valve are used where a pumper is connected to a hydrant and the hydrant pressure is sufficient for the purpose immediately in hand. In this case the churn valve is opened and the flow from the hydrant under hydrant pressure passes to the intake side, then through the by-pass to the discharge side and on into the hose line.

Figure 3 shows a diagrammatic sketch of a churn valve and its relation to a rotary pump.

Q. Are churn valves supplied on centrifugal pumps?

A. No. Since a centrifugal pump is not of the positive displacement type, the churn valve is not a necessity on such pumps, although it may sometimes be provided. When a line on a centrifugal pump is shut off, the water within the pump is carried around by the impellers, even though there is no discharge.

Q. What is an automatic relief valve, and what is its purpose?

A. The pump operator seldom knows in advance when a line of hose is to be shut off. If a single line is operating from a displacement pump, a sudden closing of the line may result in stopping the pump before the operator can open the churn valve. Before this takes place, however, a momentary so-called "backing up" of the pressure in the pump may be sufficient to blow the hose line or even the pump casing or connection, and in any case may be injurious to the motor. If more than one line is operating and a portion of the lines are suddenly closed, the pump may continue to run as long as some lines are in opera-

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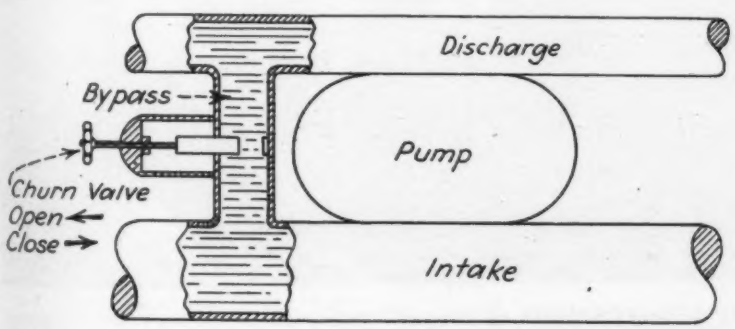


Fig. 3

I.A.F.C. CONFERENCE DATES SET; TO BE HELD AT GRAND RAPIDS

Directors, at Annual Meeting, Arrange Program; Also Discuss Manpower, Priorities, Public Relations and Other Topics.

THE annual meeting of the officers and directors of the International Association of Fire Chiefs was held at the Hotel Pennsylvania in New York on January 25-28.

A crowded program of work kept the group in session from ten o'clock each morning until six at night, but with a short intermission for lunch.

An unusual feature of this meeting was the work done by a group of special committees appointed by the President, Chief Art J. Baker. These committees consisted of the Coordinating Committee, Chief Ray Tiller, Chairman; Membership Committee, Chief Jay W. Stevens, Chairman; Manpower Committee, Chief G. R. McAlpine, Chairman; Priorities Committee, Chief John H. Alderson, Chairman; Post War Committee, Chief Selden R. Allen, Chairman; Communications Committee, Chief Roi B. Woolley, Chairman; President's Advisory Committee, F. B. Philbrick, Chairman; Educational Committee, Fred Sheppard, Chairman; and Public Relations Committee, I. H. Case, Chairman.

The first business taken up by the conference was a discussion of the coming conference at Grand Rapids, Mich. The dates selected were August 22 to 25 inclusive, and the headquarters will be at the Pantlind Hotel. Exhibits will be held at the Municipal Auditorium, which adjoins the Pantlind Hotel. The exhibits will be under the direction of Chief William P. Payne of Spokane, Washington, Chairman of the Exhibit Committee, and Chief James T. Keegan, Salvage Patrols, Newark, N. J., who has served as Chairman of the Exhibit Committee at several conventions in recent years.

Mr. Walter Sack, City Manager of Grand Rapids, was on hand to discuss the features of interest in Grand Rapids, and he expressed his confidence that the Grand Rapids meeting would be an outstanding one.

In the reports of the committees appointed by President Baker, many interesting affairs of the Association were included. Chief Ray Tiller of the Coordinating Committee reported the results of a survey made among secretaries of district organizations in the International Association of Fire Chiefs, which showed many variations in the procedures followed by the districts in the matters of membership, etc. This survey brought forth a number of suggestions from the various districts as to changes in the organization they would recommend.

Report of Chief Stevens of the Membership Committee showed a marked increase in the number of members in the International Association during the past six months. He expressed the belief that a further increase of 2,000 members was not only possible, but probable, during the balance of the year.

Chief McAlpine of the Manpower Committee reviewed the experiences of a large number of fire departments throughout the country with relation to losing firemen by the draft. His report, plus the discussion which followed, gave specific information on how fire department heads might reduce the drain of men from the fire service by proper appeal to the local draft board.

In reporting for the Priorities Committee, the Chairman, Chief John H. Alderson, pointed out that fire departments, under the apparent belief that priorities for fire apparatus are next to impossible to secure, are not making application for priorities for needed apparatus. He urged that the fire service as well as the Conference of Mayors and the City Managers' Association be informed that cities which have a real need for fire apparatus may secure priority therefor.

Chief Selden Allen, Chairman of the Post-War Committee, gave a very comprehensive report on post-war planning designed to bring benefit and improvement to the entire fire service. He urged immediate action in planning for fire department improvements which might be partially financed by federal grants, if federal funds are made available for this purpose.

Communications Committee Reports

Chief Roi Woolley, with the cooperation of Herbert Friede, also a member of the Communications Committee, reviewed the work of this committee during the past few months. The committee expressed the hope that radio might be made available to all fire departments in the future, and without joint use by other municipal branches. This committee is also to serve as the Priorities Committee for Signaling System Equipment.

F. B. Philbrick, Chairman of the President's Advisory Committee, gave a very constructive report on plans for strengthening the Association. His committee, together with a sub-committee made up of publicity managers of concerns representing the Sustaining Members of the Association, laid out detailed plans for building membership in the organization. These plans are to be initiated at once, in connection with the work of the Membership Committee.

The Education Committee reported a tentative program for increasing the amount of instruction material furnished to members during the course of the current year.

I. H. Case, Chairman of the Public Relations Committee, offered a number of practical suggestions for building up the prestige of the Association. He stressed the fact that any public relations program on a national scale is a tremendous task, and that the Association, in embarking on a public relations program, must gauge the size of the pro-

Mayor LaGuardia Addressed the Directors

Left to right are: Chief Samuel J. Pope, Boston, Mass., First Vice-President; Chief Jay W. Stevens, Executive Secretary; the Hon. Mayor Fiorello H. LaGuardia, New York City; Chief Art Baker, Lewistown, Mont., President, and Fire Commissioner Patrick J. Walsh, New York City.

gram by the facilities and finance available.

To save time, guest speakers appeared before the group at the luncheons, rather than during the business sessions.

On Tuesday, January 27, Chief Raul Gandara, of the Porto Rican Insular Fire Department, described the organization of a single fire department for the entire island. The many local fire departments will all be under control of the Insular Department. Thus the fire service of the entire island will be in the form of a closely knitted mutual aid plan.

On Wednesday, January 26, Mayor Fiorello H. LaGuardia, of New York City, addressed the guests. He predicted revolutionary changes in methods of fire fighting in post-war years, based chiefly upon the experiences of the armed forces during the war.

The Thursday luncheon speaker was Harry Jordan, Secretary-Treasurer of the American Water Works Association. Mr. Jordan reviewed the work being done by the American Water Works Association in post-war planning, and urged that cities finance their own improvements, rather than count too much upon federal aid for such financing. He recommended having complete plans for improvements on hand, however, in the event that conditions might call for immediate inauguration of a public works program.

On Thursday afternoon, George A. Cumming, Chief, Fire Defense Section, Governmental Division, War Production Board, discussed fire apparatus priorities.

Those Present

The officers and directors who were present included: President Art J. Baker, First Vice-President Samuel J. Pope, Second Vice-President Charles A. Delaney, Secretary-Treasurer Daniel B. Tierney, Executive Secretary Jay W. Stevens, Directors James M. Duncan, William J. Lutz, Peter Steinkellner, G. R. McAlpine, James Armstrong, Andrew T. Callahan, Thomas M. Lane, Selden R. Allen and Ray Tiller.

Committeemen and others included Chief J. J. O'Kelly, President, Dominion Association of Fire Chiefs; F. B. Philbrick, President, The Gamewell Company, Chairman, President's Advisory Committee; Fred Shepperd, Chairman, Educational Committee; I. H. Case, Chairman, Public Relations Committee; Chief William P. Payne, Spokane, Wash., Chairman of Exhibits Committee; Chief James T. Keegan, Salvage Corps, Newark, N. J., member of Exhibits Committee; Chief Roi B. Woolley, Chairman, Communications Committee; Herbert Friede, member, Communications Committee; Chief John H. Alderson, Los Angeles, Cal., Chairman, Priorities Committee; Acting Chief John J. McCarthy, New York, member, Priorities Committee.

Others who were present included Chief Edward C. Palmer, Grand Rapids, Mich., host to this year's conference; Chief Raul Gandara, Insular Fire Department, Porto Rico; Walter Sack, City Manager, Grand Rapids, Mich.; George W. Booth, Chief Engineer, National Board of Fire Underwriters, New York; Commissioner Patrick J. Walsh, New York City; Lieutenant Jack Mason, formerly Chief, Fire Defense Section of the OCD; L. G. Schraffenberger, Chief, Fire Defense Section, OCD; George A. Cumming, Chief, Fire Defense Section, Governmental Division, War Production Board; Acting Assistant Chief John J. T. Waldron, New York Fire Department; Former Chief George Mitchell, East Orange, N. J.; Hubert Walker, American - LaFrance - Foamite Corporation; Harry Messenger, American-LaFrance-Foamite Corporation; Joseph H. Green, Eureka Fire Hose Division, U. S. Rubber Company; Former Chief John Towey, Newark, N. J., (a Past President International Association of Fire Chiefs); Fred Beardslee, Mack Manufacturing Corporation; Chief George J. Kuss, Woodhouse Manufacturing Company; Harry Cavanagh, American District Telegraph Company; Charles H. Stephens, President, Buffalo Fire Appliance Corporation; Arthur G. Sullivan, Buffalo Fire Appliances Corporation; Arthur Myers, Atlas Safety Equipment Company.

After the conference, Chief Jay W. Stevens, Secretary of the Pacific Coast Association of Fire Chiefs, reported that that Association had selected August 15-17 for its annual conference. This will fall the week preceding the International Conference.

NAVY FIRE FIGHTERS TRAINED AT NEW SCHOOL IN BROOKLYN

Seventh School for Instructing Naval Personnel in The Rudiments of Firefighting Now in Operation

By Jerry Daly

THE efficacy of high and low velocity water fog for combating fire aboard all manner and make of craft engaged in combat or cargo for our Uncle Sam was recently demonstrated by the blaze beaters of the Navy's new Fire Fighters' School in daily session on the Brooklyn (N. Y.) waterfront near the New York Navy Yard. Approximately 120 students daily—officers and men from fighting ships—are "taking in" the two and the six day courses given by three commissioned and two chief petty officers.

Using up-to-the-minute methods and equipment, students at the fire school extinguish gasoline and fuel oil fires in tanks, sheds and in concrete and steel structures which simulate the engine rooms and the fire rooms of destroyers as well as the hangar decks of aircraft carriers.

"The fight against intense heat and smoke instills confidence in the men," said one of the instructors. "Only actual experience can give them this confidence," he added.

In one spectacular feature of the training program the simulated interior of an engine room was flooded with fuel oil and primed with high-test gasoline. The mixture was set ablaze and the students extinguished the flames with three one-and-a-half-inch lines of high velocity "water fog".

As a variation of this test, the engine room was again flooded with oil, primed with gasoline, lighted and allowed to burn. The flames were doused from the

Navy Learns to Fight Fire

One group of students watches closely as another body of sailors extinguishes flames in a fifteen-foot diameter tank of burning fuel oil. Designed to give officers and bluejackets experience in combatting shipboard fires, the school is the seventh of its type to be established by the Navy. These sailors use modern water fog to extinguish the fire.

top of the structure by applying a blanket of foam with the use of a Navy mechanical foam nozzle.

On the first day of the course for enlisted men, the instructors assume all of the responsibility. On the second day, however, the students are on their own, with the instructors acting in an advisory capacity. Fires are lighted without warning; hose connections broken and equipment strewn about, approximating emergencies on a ship engaged in combat. In addition to the fire tests, students attend lectures on fire fighting embellished with an educational "movie" illustrating proper fire extinguishing methods as taught by the U. S. Navy. Other Navy schools for fire fighters are in Boston, Norfolk, Bremerton, Wash.; Mare Island, San Diego and Pearl Harbor, with others under construction.

At a recent demonstration in the New York School, the evolutions witnessed by this reporter were:

1. Two 15 foot diameter tanks containing fuel oil were lighted; burned freely, and then extinguished in a jiffy with low velocity water fog.

2. Flowing gasoline, pumped through a series of pipes with 48 outlets within a steel compartment, was ignited and allowed to burn freely and then quickly smothered by water fog.

3. The inside of an "engineroom" of a destroyer was flooded with fuel oil. The oil was primed with high test gasoline, allowed to burn and was extinguished with three one-and-one-half inch lines of hose, using same method of extinguishment.

4. The inside of a "fireroom" of a destroyer was flooded with fuel oil, primed with gasoline, lighted, allowed to burn and extinguished with two one-and-one-half inch lines with high velocity water fog.

5. Another fire was started in the "engineroom" and extinguished with high velocity water fog from topside (assuming entrance from below was impossible).

6. The hangar deck of an "aircraft carrier" was flooded with oil, primed with gasoline and lighted. Fire was extinguished with "fog foam" from six small low velocity heads installed in a fixed sprinkler system—liquid (mechanical foam) being used.

7. Fire in a 15' tank was extinguished, using small gasoline handy-billy pump. "Fog Foam" (liquid mechanical foam) was again the extinguishing agent.

8. Fire in a 15' tank was extinguished from the lee side, using two 1½ hose lines equipped with Navy all-purpose nozzle for high velocity water fog.

The program is under the direction of Lieut. Commander Harold J. Burke, U.S.N.R., Deputy Chief of the New York Fire Department, on military leave, who designed the schools, worked out the curriculum, designed the equipment to combat fires caused by modern naval warfare, directed the production of motion pictures used in teaching the course, and wrote the Navy Fire-Fighting Manual.

The entire problem of establishing techniques of shipboard fire fighting was the responsibility of the Bureau of Ships, and is under the cognizance of the Damage Control Section, to which Lieut. Commander Burke is assigned.

The men in the program have been recruited from Fire Departments throughout the country. Every section of the nation is represented in the roster. The success of the program depends on the wholehearted cooperation of each man in it. The entire program is a tribute to the fire service of America.

The Commanding Officer of the New York School is Lt. William J. Magner, U.S.N.R. (Captain, Boston Fire Department on military leave). His principal assistants are Lt. Joseph C. Crawley, U.S.N.R., and Lt. Charles A. Hickey, U.S.N.R.,—both on military leave from the New York Fire Department.

Throughout the Mediterranean campaign, organized units of special fire fighting parties fought ship fires caused by enemy action. They were the first to set foot on the shores of Sicily. Nine of these fire fighters paid the Supreme Sacrifice.

Smithtown Emergency Squad

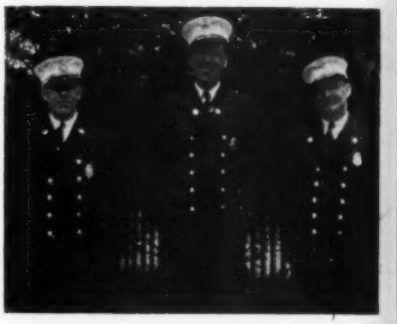
The Smithtown Volunteer Fire Department of Smithtown Branch, L. I., located about 50 miles from New York City, on the north shore of Long Island has maintained an ambulance service for the past five years.

The three nearest hospitals are each fifteen miles distant from Smithtown. Some years ago, when road accidents were frequent and hospital ambulances difficult to get in a hurry, the department was frequently called on to transport injured in their emergency car. This car was equipped with a canvas top and was unheated, and on winter days or nights there was a possibility of the patient contracting pneumonia.

Some members of the department conceived the idea that Smithtown should have an ambulance, and the logical organization to handle such service should be the fire department. A door to door campaign was conducted, donations solicited, regardless of how small, for the purchase of this vitally needed equipment, and the people of Smithtown, realizing the urgent need for this service, responded most generously. The fact that since this service was inaugurated the squad have responded to 1,000 calls bears evidence that the ambulance was most urgently needed.

The ambulance is controlled by a group .of twenty members, selected within the fire department and known as the Emergency Squad. These twenty men are approved by the Board of Fire Commissioners as official drivers and are available any hour of the day or night.

The membership of this very active



Officers of Smithtown Fire Department. Left to Right Are Chief Earl R. Scott, First Assistant Chief Henry Hesse and Second Lieutenant Chief John W. Jones.

department is comprised of 120 men and the drivers of the ambulance have this large personnel to draw on for an attendant.

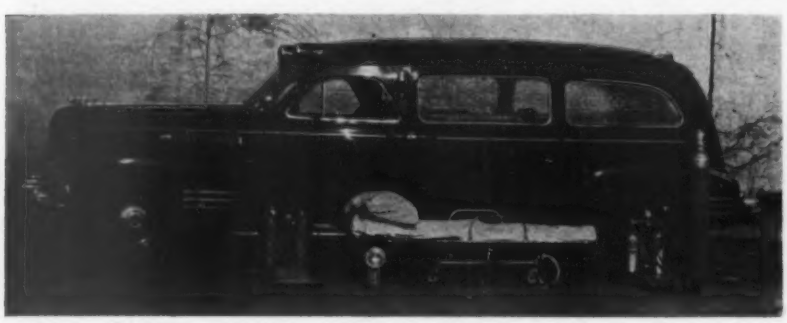
Practically all department members have taken first aid instructions, particularly the men of the emergency squad, most of whom have taken advanced courses. The request for ambulance service must come from a qualified physician, and no patient is ever moved except with the approval of a doctor. The volunteer firemen who operate the service receive no compensation, neither is there any charge for the use of the ambulance. The cost of maintenance of the ambulance, such as gasoline and repairs, is borne by the fire district.

An adjustable wheel cot carries the patient on a matress of foam rubber type. A spare cot, which when not in use folds into two seats for attendants, is carried. All linens and blankets are entirely changed and laundered after each call.

A resuscitator-inhalator is on hand for use in cases of submersion or gas fumes. Two large tanks of oxygen are ready for instant use. A steel-framed "Thomas" splint and a supply of wood splints are provided for care of broken limbs. A spacious cabinet in the rear compartment is stocked with a complete first-aid kit, with plenty of gauze, bandages, adhesive, etc., and a rubber tourniquet to stop bleeding in severe cases. Towels, compresses and sick-room utensils and a large thermos bottle are included in the equipment.

The splendid service performed by the Smithtown firemen is recognized and appreciated by the people of Smithtown; so much so, that when the original car, a LaSalle, needed replacement additional necessary funds were promptly donated for the purchase of a Cadillac.

JOHN KEYES.



Smithtown Fire Department's Emergency Car.

Maine Chiefs Hold Quarterly Meeting

The January meeting of the State Association of Fire Chiefs of Maine was held on Tuesday January 18th, with more than sixty chiefs and guests in attendance, at the Central Station of the Augusta Fire Department. Mayor Levi T. Williams of Augusta made the address of welcome to the Maine Chiefs which was responded to by Chief Michele H. Falconi of the Hallowell Fire Department.

Chief Herbert Constantine, Bangor, President of Maine Chiefs

One of the important matters of business of the meeting was the vote to continue the standardized training program which had been promulgated by the State Office of Civilian Defense and now under the direction of the Maine Instructors Association. Col. F. H. Farnum, State OCD Director, one of the speakers at the morning session stated in his talk that firemen's training as established under the OCD will be continued on the OCD program, and praised the Maine departments for the work that had been done. He further stated that the fire fighters, police and medical staffs were the backbone of the CD protective service, and advocated training on an increased scale, for the benefit of the different localities in the state, as an indefinite program and not only for the duration of the war.

Charles E. Fortin, chairman of the Unemployment Compensation Commission, and a former fire chief of the City of Lewiston, another speaker on the program, devoted his remarks to state legislation that would provide a Fire Marshal for the State. This would give the fire departments and their officials a unified authority to which they could turn in their problems, and is a matter that the Maine Association has worked on for a number of years, concerning which there is now a bill in recess of 1943 legislature.

Lt. James Cowan of the Bangor department and President of the Maine Instructors Association, who had recently returned from the Sixteenth Annual Fire Instructors Conference at Memphis, Tenn., stated that Maine was rated third in the list of states in the number of men that had been given training during the past year. He also spoke of the coming innovations in fire fighting practice in the use of high pressure fog or water vapor which will supplement the former heavy streams of water. He also indicated that the post war training would include special studies in airplane crashes, and that the army Jeep would undoubtedly figure in grass and forest fires in the post war program.

Secretary of State Harold I. Goss, who was speaker at the luncheon session of the association at the Augusta House, complimented the State fire departments, declairing that Maine is well equipped to take care of lives and property by an efficient personnel, and advocated continued training, as too much could not be known of the cause of fire and of fire equipment.

One of the pleasing features of the meeting, was the making of Ralph Webber of Augusta an honorary member of the association "for conspicuous services rendered" the association in his position, in charge of the training program by the State Office of Civilian Defense. His membership was proposed by Chief Curtis Allen of the Sanford department.

J. W. RANDLETTE.

Plane Crash Causes Fire

An Army fighter plane careened out of the sky over Daly City at 9:15 a.m. Sunday, December 5, and plunged out of control into a vacant house hurling flaming wreckage over an area covering 200 yards and instantly killing the pilot.

A dozen other homes were damaged by fire or the far-flung wreckage, two of them being shunted almost off their foundations.

Asst. Fire Chief A. J. Bodien of Daly City termed it a miracle that the plane hit and exploded against the only vacant house for blocks and that no one other than the pilot was killed or injured despite the fact that debris, including parts of the motor, rained through roofs; machine gun bullets, exploded by the fire, riddled nearby buildings, and high octane gasoline caught fire and sent flames racing down the street.

What was a quiet residential street seconds before the crash suddenly became a scene of havoc when the crippled plane roared down from the murky, cloud-heavy sky in the hills above Daly City which lies contiguous to and just south of San Francisco.

A few seconds after the crash the entire street was an inferno from high octane gasoline burning fiercely. Machine gun ballets pinged everywhere. Two houses were in ruins and two others on fire. Two families in different houses saw parts of the plane crash through the ceilings of their homes. One couple heard the thud of the pilot's body on the roof of their one-story home.

Daly City sent five pieces of fire fighting equipment to the scene and San Francisco, while not asked to aid, sent Engine 33, Water Wagon 10 and the chief of the 9th Battalion to stand by. San Francisco police and Army and Navy police were immediately dispatched to the scene to aid.

Firemen were able to quickly extinguish the flames despite the flaming volatile liquid and guards were stationed in the area to prevent the curious from picking up highly explosive tracer shells.

Military authorities launched an investigation immediately and questioned persons in the neighborhood who reported the pilot had been flying very low over the area for some minutes before the crash as if looking for a place to land.

BOB GREENOCK.

Shepard Returns as Chief Electrical Engineer of Underwriters' Laboratories

Robert B. Shepard resigned December 31, 1943 as assistant director of the Conservation Division of the War Production Board, Washington, to devote full time to his regular position as chief electrical engineer of Underwriters' Laboratories at its New York office, 161 Sixth Avenue.

Mr. Shepard's duties while he was on loan from the Laboratories were to set up programs for simplifying products so as to release critical materials and manpower for the war effort.

He will continue to serve as the Division's representative in contacts with the American Standards Association.

Ruins of the Fire Caused by the Plane Crash in Daly City, Calif.

A. J. Mullaney Chosen Chief Fire Marshal

Anthony J. Mullaney has been named Chief Fire Marshal of the Chicago, Ill., Fire Department, by Fire Commissioner Michael J. Corrigan. He has been Acting Chief Marshal for more than a year and in a civil service examination for the post had the highest grade of those seeking the appointment.

Chief Mullaney has been a member of the department since May 14, 1914, and has taken every civil service examination prescribed for firemen in gaining the series of promotions that carried him from assistant engineer through the various grades to his present position.

Fire prevention methods have been studied by him for many years and his ideas have been put into effect in 400 war plants in Chicago in the last thirteen months. The list of war plants was prepared for Chief Mullaney by the Internal Security Division of the Sixth Service Command. If plants failed to follow the department's safety suggestions, they were closed by the army. It was necessary to close only three for a few days and the record shows there has not been an extra alarm fire in any of the 400.

H. D. Demonbreun, Chief at Nashville, Tenn.

Henry D. Demonbreun, acting Chief of the Nashville, Tenn., Fire Department has been appointed Chief, on a provisional basis succeeding Chief Jesse A. Scruggs, who retired on December 15 due to ill health.

While the action of the Civil Service Commission is a temporary one, Chief Demonbreun has undergone a civil service examination for a permanent appointment, and his name will be placed on a certified eligible list for the position.

Chief Demonbreun is a veteran of twenty-six years of service with the fire department. He was appointed a substitute fireman on February 18, 1918.

Advancing to a permanent position as pipeman a month later, he was promoted to a lieutenancy in June, 1926, and became a captain in May, 1930. He received an appointment as second assistant chief in October, 1938, holding that position until he was given a provisional appointment as first assistant chief, effective last July.

Since that time, the Chief has served as acting chief due to the ill health and subsequent retirement of Chief Scruggs.

Chief William E. Roberts Dies

William E. Roberts, last surviving chief of the old Denver, Colo., volunteer fire department and first chief of the city's regular fire fighting force died on January 1. He was 86 years old.

As Chief of the volunteer department and as first Chief of the paid department, from 1894 until 1903, Chief Roberts directed fire fighting in a number of disastrous blazes still remembered by pioneer residents of the city.

Chief Roberts was born in Wales, January 12, 1858, and was a stonecutter's apprentice in his native town when he was nine. He came to the United States when he was 15 and settled in Denver.

The Chief was credited with making one of the most famous rides of the era. Riding in a buggy, he covered the five and one-half miles to a fire at a military academy in twenty-eight minutes and arrived in time to direct firemen in a successful attempt to control the flames.

On another occasion, he was fighting a blaze at the old Colorado Central Depot, when 200 kegs of blasting powder exploded and destroyed the building.

Chief Roberts was known throughout the region for his part in fire fighting contests that were one of the most colorful sports of the day. His hook and ladder company made several world's records that never were equaled.

Practice Blackouts Curtailed

The War Department and the Office of Civilian Defense recently announced the elimination of practice air raid alerts and blackouts, involving public participation, except in coastal areas. Along the Atlantic and Pacific coasts such alerts and blackouts will be authorized not oftener than once in three months, and then only on a Sunday; however, the War Department has issued instructions that its field agencies must be prepared to reactivate air raid drills, and civilian defense personnel and the public must also be prepared to engage in more active training in the event the strategical situation changes in such manner as to warrant increased passive defense measures.

This curtailment in passive defense activities is intended to decrease interference with production of war material and is possible, at this time, because the War Department and the Office of Civilian Defense believe that most communities are sufficiently well organized to cope with such emergencies as can now reasonably be anticipated. The Office of Civilian Defense will recommend continuance of periodic training for local civilian defense personnel. Such training will not involve general public participation except when practice alerts are approved by the military authorities. The War Department and the Office of Civilian Defense again point out that the need for volunteers to serve with Control Centers and with the air raid wardens, the auxiliary police, medical and fire services and to assist in keeping down our losses in war materials through fire, accidents and other causes, is probably greater than ever.

New Connection Sought

A. R. Bailey, former Fire Chief at Turner Field, Albany, Ga., is interested in securing a new connection in the fire fighting field.

Mr. Bailey is a graduate of the Georgia School of Technology, class of 1926, and has been in business as a safety and industrial engineer, specializing in fire prevention for a number of years.

From 1926 to 1940 he was coordinated with the Atlanta, Ga., Fire Department, the Macon, Ga., Fire Department and the Birmingham, Ala., Fire Department as associate safety and fire inspector on a fee basis.

From 1940 to 1941 he was Fire Chief at the Atlanta Army Airport and from 1941 to 1943, Fire Chief at Turner Field, Albany, Ga.

He is fifty years of age and resides at 223 East Harvard Avenue, College Park, Ga.

Official Photographs U. S. Coast Guard

Spars Participate in Fire Department Activities

"We're comin' up to get you!" And it would be a pleasure to have these Spars, stationed in San Francisco, rescue a fellow any time. They, together with Wacs, Waves, Women Marines, Navy and Army nurses, participated in the patriotic finale at the two-hour entertainment that was part of the San Francisco Firemen's Ball given November 6 in Civic Auditorium to raise funds for the Widows' and Orphans' Aid Association. The Spars visited the Fire Department drill school and nothing would do but they must climb ladders, jump into nets and ride the rig.

Left to right: R. C. Stange, Lewis A. Vincent, H. E. Newell and George Tatnall, all members of the National Board of Fire Underwriters.

Dr. Richard C. Steinmetz, Chief Arson Investigator, Asso. of Mill & Elevator Mutual Ins. Co.'s, Chicago, Ill.

Photos by Hugh Walker

George H. Anderson, Asst. State Fire Marshal, and John H. Craig, State Fire Marshal, Springfield, Ill.

Instructors Meet in Memphis

The Sixteenth Annual Fire Department Instructors' Conference was held in Memphis, Tennessee, from January 11-14. It proved to be the largest meeting the Conference ever conducted, there being approximately 450 registered.

Many technical subjects were discussed, including firemen-training, work of the Underwriters' Laboratories, changes in first aid practices for burns, training of fire department officers, use of fog nozzles, relaying of water, educating employes in fire safety, combating the work of the arsonist, Junior fire departments, replacing fire department personnel, work of volunteer fire chiefs, fire service post-war problems, "The selling problem" of the Fire Service after the war, fire apparatus and equipment priorities, prevention of fire department accidents, first aid, fire department radio, fighting fires in explosives and ammunition in transit, training firemen in airplane crash fire fighting, adoption of the Fire Guard system to local needs, automatic protective devices, chemistry of industrial fires, municipal lessons from army fire experience, and lessons from major industrial fires.

In accordance with the previous practices of the International Association of Fire Chiefs, and through the courtesy of the Fire Department Instructors' Conference, the principal papers presented at Memphis will be reproduced and distributed to its membership.

The Conference is sponsored jointly by the Fire Prevention Department of the Western Actuarial Bureau, of Chicago, and the Fire Department of the City of Memphis, the facilities of the latter organization being available through the cordial interest of Chief Connie O'Sullivan and Joseph P. Boyle, Vice Mayor and Commissioner of Public Safety.

Richard E. Vernor is Chairman; Harry K. Rogers is Vice-Chairman, and Emmett T. Cox, Secretary.

Photos by Hugh Walker

Left: Richard E. Vernor, Chairman of the Conference. Right: Mayor Chandler presenting the badge of honorary membership in the Memphis Fire Department to Lt. Col. H. R. Brayton, Edgewood Arsenal, Md.

Emmett T. Cox, Secretary of the Conference, and Dr. W. A. Ross, U. S. Department of Education, Washington, D. C.

George A. Cumming, Governmental Division, WPB, Washington, D. C., and Fred Shepperd, Editor of FIRE ENGINEERING.

Gifford T. Cook, Engineers' Corps, Washington, D. C., and Harry H. Wolff, Chicago Fire Department.

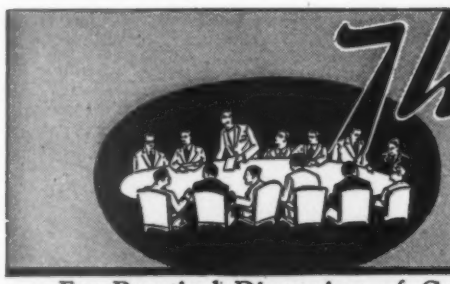
Photos by Hugh Walker

W. M. Walton, Birmingham, Ala., and Robert F. Hamm, State Fire Coordinator, Indianapolis, Ind.

Photo by Hugh Walker

Michigan Was Well Represented

Left to right are: H. H. Gloyd, Murray Body Corp., Detroit; unindentified; L. Carroll, Birmingham; Chief Norman Pritchard, Ferndale; Malcolm D. Whale, Lansing; Chief R. E. Mottesheard, Dearborn; Chief Edward L. Rector, Grosse Pointe Park; L. E. Demming, Port Huron; unindentified; Edward C. Rumsey, State Fire Instructor, Detroit; Ray H. Gasman, Escanaba; and George M. McConkey, Ann Arbor.



The ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

ESTIMATING LOSSES TO BUILDINGS AND CONTENTS BY FIRE

THE problem of estimating losses to buildings and contents following a fire is one in which many fire chiefs are interested, but also one in which there is a great deal of confusion.

Some chiefs report that the fire insurance adjusters are too generous in estimating losses, while others report that the estimates of the fire department tally closely with those of the insurance adjusters.

In cases where properties are not covered by insurance, the fire chief, or some other designated officer, in almost every case estimates the fire loss, basing it on the valuation of the property; cost of materials, labor, etc., to rebuild.

Readers are invited to send in their comments on this subject for inclusion in the discussion which will be continued in the next issue. Address communications to Round Table Editor, FIRE ENGINEERING, 24 West 40 Street, New York 18, New York.

HERE IS THE QUESTION

Does your fire department estimate losses to buildings and contents by fire?

If not, how are loss figures secured?

Do you use insurance adjustment figures (when property is insured)?

Have you found that fire department estimates are reasonably accurate?

Discussion of the Topic

J. Frank Van Atta, Chief, Kalamazoo, Mich.: Only estimated losses are made by us on uninsured buildings and contents damaged by fire. In making up our annual report we secure the figures from the insurance adjusters and we receive our valuation figures from our City Assessor.

We have found that our estimates on some premises were slightly low due to the fact that some rooms were redecorated and there were other minor adjustments made that we had not figured. It is quite difficult to estimate losses due to fluxuation of labor, time and materials; also the cost of furnishings.

These are my own personal experiences and if there is some rule of estimating losses in dwellings, I surely would appreciate hearing of it.

Grover L. Frock, Chief, Springfield, Ohio: We do make an estimate of all fires, both building and contents; also automobile fires or at any time we make a call where there is something damaged by fire. This is done for the benefit of the local newspapers and we are sometimes forced to use them ourselves. We use these figures until such time that we can get the insurance adjuster's final estimate, at which time we change the figures on our records.

The estimates made by the Fire Department had been fairly accurate up to the start of the war. Since then the local contractors have raised their prices so that we have missed several estimates lately by as much as fifty per cent. Previously our department estimates were within about seven per cent of the final settlement.

A. McC. Marsh, Chief, Columbia, S. C.: We make a rough estimate of each fire after our work is finished at the fire. This is not final, but for our information.

At the end of each month each fire is checked. The chief of our fire inspectors goes to each insurance adjustor's office to secure the information for our files and reports. Columbia is blessed with insurance adjustors who are fair to all parties concerned.

The fire adjustors use all figures and facts connected with the case in making adjustments. A form is used on which is recorded the date of the fire, the time, the fire alarm box, location, owner, occupant, value of building, insurance on building, damage of building, value of contents, insurance of contents, damage of contents, cause, agent and the kind of building. A similar form is used by the adjustors.

Our estimates are reasonably accurate, but they are never final.

If there has ever been a law suit in Columbia with us, I have not heard about it. No insurance case has been in court for several years where the suit was brought for adjustment.

C. L. Bolz, Chief, Pasadena, Cal.: I am very much interested in your problem on estimating fire losses to buildings and contents. I sincerely hope that out of this discussion may come a recognized national standardized plan for computing such losses. Comparison of losses between cities of approximate size can hardly be judged fairly unless the same methods of estimating losses are used.

We do estimate losses to buildings and contents by fire. In the larger fires we work in conjunction with our City Building Department.

We do not rely entirely on insurance adjustment figures. Before arriving at the final figure we always get the insurance adjustment figures, also the estimates of the owner, and from these and our own estimates work out the final estimated loss.

We find that our figures are generally fairly close to the insurance adjustors' final figures. The vital question of depreciation is apparently the stumbling block in arriving at a universal method of computing fire losses.

As far as my views on the matter are concerned, I believe the only possible method of fair standardization would be to take the insurance adjustment figures as final. After all, this is the money actually paid out and should be considered the loss. Possibly in some cases the insurance company may be a little generous, but I don't believe they will be taken for too much of a ride. Anyway, it would be as fair to one as to another.

Earl W. Swartz, Chief, Harrisburg, Penna.: We do not estimate losses to buildings and contents damaged by fire, but take the figures given by the Fire Companies Adjustment Bureau where there is an insured loss. Otherwise we wait until the owners have made the repairs and get the figures from them.

Thomas H. Shipman, Chief, New London, Conn.: The fire chief or other chief officer in charge of any fire will estimate the loss on building and contents for the state fire marshal, office convenience and the local papers. After settlement has been made, corrected figures are sent to the state fire marshal and placed on our permanent records.

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A Peacetime Asset—A Wartime Necessity

YORK SAFE AND LOCK CO.
YORK PENNSYLVANIA

December 9, 1943

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Mr. C. T. McGraw, Pres.
303 Dwight Building
Jackson, Michigan

Gentlemen:

It is a pleasure to advise you that the Fire Hose Drying Cabinet purchased more than a year ago has been very satisfactory, and is doing a splendid job of drying hose after every fire drill or anytime, whether it be snow-ice-rain or shine, I have the assurance that the hose will be ready for use in five to six hours in perfectly dry condition. It is my opinion that the cost of the cabinet has already been saved by the prolonged life of the hose that has been kept in good condition by its operation.

The space required for the Unit was one of the reasons for its purchase, as we did not have the room to use hose racks, and I assure you that the combination of perfect hose drying and space saving at the same time, makes it worthy of any users' praise.

Very truly yours,
YORK SAFE AND LOCK COMPANY

JSR/cmb

John S. Ehrl
Chief of Fire Dept.

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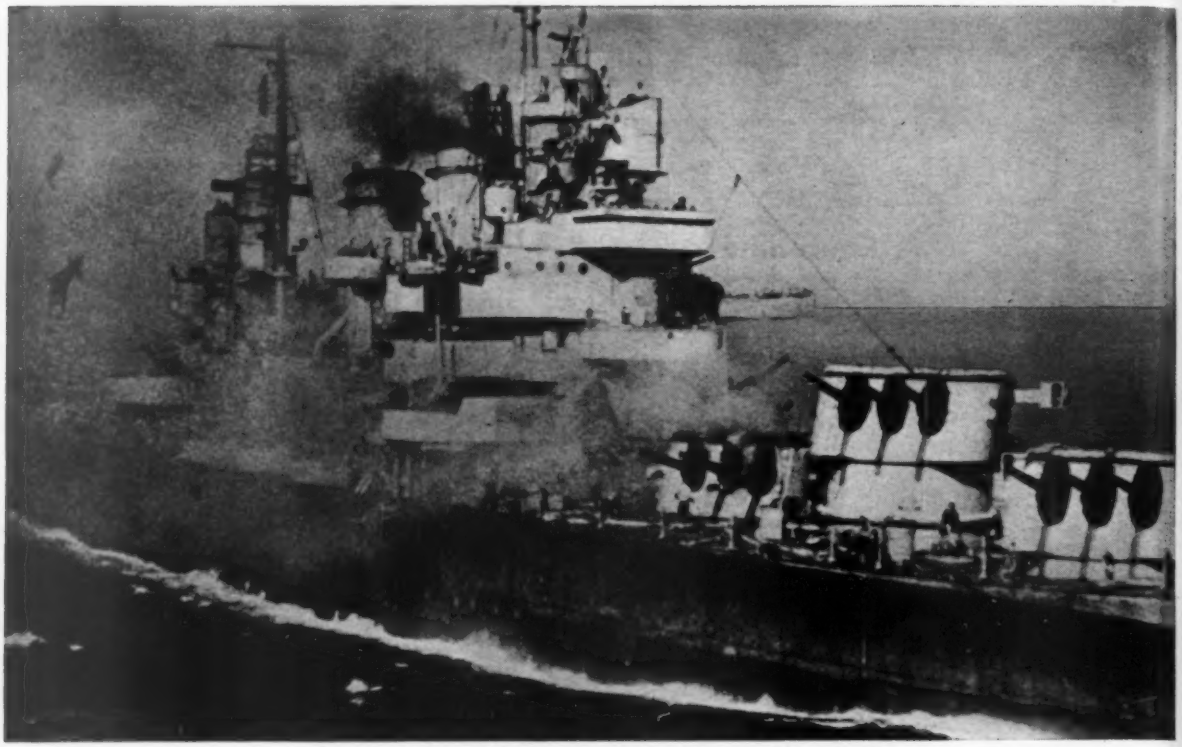


USS SAVANNAH on fire in action off Salerno. (This photo is from a newsreel.)

When Enemy Bombs START *FIRES*
National Foams STOP Them

Many dangerous fires on U. S. fighting ships have been quickly and effectively controlled with National Fire Foams. Thousands of lives have been spared, and millions of dollars, in ships and cargoes, saved.

Excerpt from Lowell Thomas Broadcast—Tuesday, November 2, 1943:

"It was disclosed by the Navy today that one of our topnotch cruisers was damaged in the landings at Salerno—the Savannah. That warship sustained a direct hit from a German aerial bomb, which smashed a gun turret and set it on fire. . . . Last night at Movietone Newsreel, we worked on pictures of the Savannah, and these show the blast on the cruiser. You see the Savannah belching clouds of smoke—and looking like a mighty serious case. But there was heroic fire fighting and the blaze was put out. And today's Navy story tells us that within twenty minutes the damage was under control and the Savannah was once again firing salvos at Nazi positions on shore."

National Fire Foams and Equipment have been adopted and are being extensively used by the U. S. Navy, by most oil refineries and large industrial plants.

IN FIRE DEPARTMENT SERVICE

National Foam System has equipment especially designed for the use of Fire Departments to meet all types of fire fighting requirements. Complete engineering service available.

The experience of our engineering department is at your service.

NATIONAL FOAM SYSTEM, INC.

Specializing in Foam Fire Protection

1632 Sansom St., Philadelphia, Pa.

In arriving at permanent figures the value of property is taken from the tax list and the insurance paid, and all losses above insurance are compiled for the total loss.

I have been estimating losses for many years and find that as a general rule our estimate of losses compare very favorably in many cases with the final settlement.

M. G. Bennett, Chief, Orlando, Fla.: The Orlando Fire Department does estimate losses to buildings and contents damaged by fire, where such losses are not covered by insurance. We accept the insurance adjustments and figures unless they are too much out of line with the actual loss. We also find that Fire Department estimates are reasonably accurate.

Joseph L. Trudell, Chief, Bay City, Mich.: The problem of estimating fire losses is another of the many headaches of a fire chief. Our experience has been that where fires occur in private dwellings, autos and the like, the owner, and perhaps justly so, considers his loss his own affair since he is paying for protection for same. In cases like this we guess as closely as we can about what the loss would be. In public buildings, factories and mercantile establishments the cooperation seems to be better and the losses reported are fairly accurate.

Any fire chief likes to see his monthly and annual reports on activities of his department turned out promptly, and many losses are held up for payment for some reason or another, making and accurate report almost impossible. We find our estimates of losses rather low.

I would suggest legislation requiring insurance companies to first contact the local fire chief before handing over insurance claims so as to give him an accurate account of the adjusted loss.

E. L. Mathews, Chief, Tuscaloosa, Ala.: We estimate all uninsured losses to buildings and contents, or take figures from the contractor if the owner rebuilds.

On losses that are insured, we use the insurance adjustment figures. On estimating uninsured losses, we find that our figures have been reasonably accurate.

W. R. Price, Chief, Springfield, Mo.: When it is possible, we use insurance adjustment records to secure our losses. Sometimes it is impossible as a number of buildings and contents are insured by out-of-town companies.

Our records show that we are reasonably accurate in estimating losses.

Thomas F. Cavanaugh, Chief, Waterbury, Conn.: We place an estimated loss on every fire that takes place. In other words, the condition of the premises is reviewed, and a figure arrived at, including building and contents. And then when we get the loss as actually paid by the insurance interests, we attach it to our report.

Frank A. Northcutt, Chief, Covington, Ky.: Our fire losses on both property and contents are estimated in all cases by the fire chief, based on insurance carried. If no insurance is carried, then the locality and condition of property is taken into consideration before an estimate is made. On property and contents that are insured, the Insurance Adjustment Company issues figures paid by the insurance company. The figures are entered in the record book of the Department.

In many cases where estimates were made and the figures later received from the Adjustment Company, they were very nearly the same.

E. P. Feaster, Chief, Lincoln, Neb.: The State Law of Nebraska requires a report to the state fire marshal, with an estimate of the loss on all fires of over fifty dollars within one week after the fire. We have found our estimates to be fairly accurate.

Our annual fire loss record is taken from the insurance adjustment figures when property is insured. When no insurance is carried, the loss is estimated.

S. D. O'Conor, Chief, Beaumont, Tex.: We file a daily, weekly and monthly report with the city manager. On these reports we have to estimate the loss, as it usually takes several days before insurance cases are settled.

We send in a report to the State Fire Insurance Commission each month. The local insurance agents do likewise. They submit the actual amount that is paid out on each fire, and we in turn are given the actual insurance loss figures for the preceding year about the 1st of March. We also get a copy of each individual loss paid from the Texas Fire Insurance Checking Bureau. This copy shows the company having the insurance, the agent who sold it, the insuree, location of risk, date of loss and amount paid, which gives us a very accurate check on each loss.

We have been able to estimate fairly closely, but there are many fires that are not reported to us, such as mattress fires in hotels and small fires in residences which are put out by the individual himself, and he only notifies his agent. The mattress fires in hotels alone amount to around $3,000 to $4,000 a year.

Victor H. Veit, Chief, Stamford, Conn.: We estimate losses to buildings and contents.

We use insurance adjustment figures when property is insured. This statement might appear to conflict with the statement above, but I might explain that at all fires that have a loss on either the building or contents, an estimate of the loss is made by the Fire Department within twenty-four hours. This enables us to arrive at our loss figures in cases where no insurance is carried. In cases where insurance is carried, however, the estimate is only used until a settlement is made. In this way, our loss figures are arrived at with a minimum of estimates actually being taken, and even though estimates are used, they have been found to be reasonably accurate.

Joseph J. Scherer, Chief, Hammond, Ind.: We do make estimates of damage to buildings and contents.

Adjustment figures are used on all fires where such losses are estimated to run over $200.00. All property not insured must, of course, be estimated.

We find that by checking our estimates against the insurance loss paid, we have qualified as pretty good estimators. It is my desire to report all losses accurately.

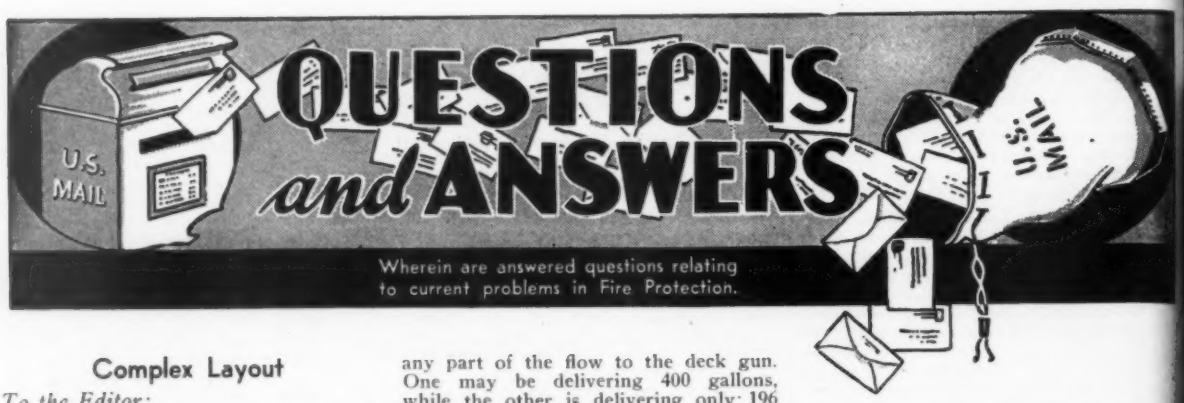
To minimize the extent of damage is not good for the patient. Let's have the facts. The doctor may also need additional help and equipment.

THIS DISCUSSION WILL BE CONTINUED

Due to the large number of Chiefs who contributed their experiences, the discussion on this subject will be continued in the next issue.

Edgewater, N. J., Auxiliary Firemen and Apparatus

Left: The Spencer Kellogg & Son factory fire brigade, which is Unit No. 6 of the Edgewater Fire Auxiliary. The fire chief standing is Deputy Chief William Leitchenfield. Next to Chief Leitchenfield is Plant Superintendent B. F. Wood. The man kneeling in white is A. Petro, Secretary of the plant fire brigade. Right: Fire Auxiliary Trailer Unit No. 6 and the fire station. Chief George P. Lasher, heads up the Edgewater department.



Complex Layout

To the Editor:

Two pumpers are pumping into a turret nozzle (wagon gun) at a second alarm mill fire.

The first pumper is a 1200-gallon, two stage parallel-series centrifugal pump. It is pumping through two 400-foot lines of 2½-inch hose employing 1¼-inch nozzles, with a third 2½-inch line 300 feet long leading into the gun. The pumper is working from a hydrant giving 30 pounds residual pressure.

The second pumper is a 850-gallon (actual test) rotary gear pump and is pumping through one line of 2½-inch hose 500 feet long. This line is equipped with 1¼-inch nozzle. A second line 500 feet long is supplying the gun. Hydrant residual pressure is 40 pounds.

What pressure does each pumper maintain in order to supply this gun? Nozzle pressure is 80 pounds. Discharge is 596 gallons per minute.

E. W. C.

Answer: Each engine must deliver approximately the same pressure at the clapper valve in order to keep the clapper valve open.

But this does not mean that they must deliver the same amount of water. As a matter of fact, one can deliver ninety per cent of the water, and the other ten per cent.

The engine delivering the greater quantity of water will naturally have a greater friction loss in the line of hose through which it is pumping, while the engine delivering the smaller quantity will have a very small friction loss in the line of hose. Thus the pressure at the first engine would have to be much greater than the pressure at the second.

The problem cannot be solved with the information given. In view of the fact that we do not know how much water each of the two lines feeding the deck gun is carrying, there is no method of figuring out what the engine pressure at each of the two engines will be. Not having these pressures, it is impossible to carry the solution any further.

If, as you have done, it is assumed that each engine is delivering 300 gallons per minute, then the problem is a simple one.

However, pressure assumption is not justified in view of the fact that either engine, as noted above, can be carrying any part of the flow to the deck gun. One may be delivering 400 gallons, while the other is delivering only 196 gallons; or one may be delivering only 100 gallons while the other is delivering 496.

Explosive Power of Gasoline Fumes

To the Editor:

How many pounds of dynamite will be equal to the vapor from a pint of gasoline in explosive power?

J. J. B.

Answer: Dynamite is not a uniform article. Some dynamite contains twenty-five per cent nitroglycerine, while other types contain as much as seventy per cent. Hence the comparison between such a uniform product as gasoline and such a variable product as dynamite is apt to lead to inaccurate conclusions.

However, for the commonly used composition of dynamite, containing thirty-three per cent nitroglycerine, fifty-five per cent sodium nitrate and twelve per cent wood pulp, one pint of gasoline will do as much work as 13.8 pounds of dynamite. This does not mean that the pressure created by the gasoline is 13.8 times as much as the pressure created by the dynamite, but it represents the relative energies of the two.

Lowering a Jammed Extension Ladder

To the Editor:

What is the proper way of lowering an extension ladder when the fly ladder is stuck?

How far should the base of a ladder be placed from a building?

How can static electricity develop in an engine house?

J. A. B.

Answer: In regard to the question you ask us on lowering an extension ladder when the fly is stuck, it would, in our opinion, depend upon the cause of the sticking.

If the dogs have caught, and cannot be freed in the usual way, and if the ladder is a portable one, the quickest way to correct the situation is to place a ladder alongside and send men up to see if they cannot free the dogs. If this cannot be done, or if the ladder is in some other manner stuck, then it may be necessary to lower it. In lowering a portable ladder, it is necessary to send men to the building to tie guy ropes on it. The ladder is then lowered by use of guy ropes and tormentors.

If it is an aerial ladder, it is usually possible to swing the ladder around and lower the extended ladder to the bed for adjustment.

The distance the base of the ladder should be placed from the building is found by the following rule:

Distance equals 1/5 L + 2, where L is the length of the ladder in feet.

Thus, if the ladder is 25 feet in length, the distance the base should be placed away from the building would be 1/5 of 25 + 2, or 7 feet.

With regard to static electricity developing in an engine house, it can be developed on any moving machinery; or it can be developed by the flowing of gasoline through a rubber hose.

Static electricity is not generated without motion. Even lightning, which is a form of static electricity, is generated by the friction of the air in motion.

Handling Fires Involving Zirconium Hydride

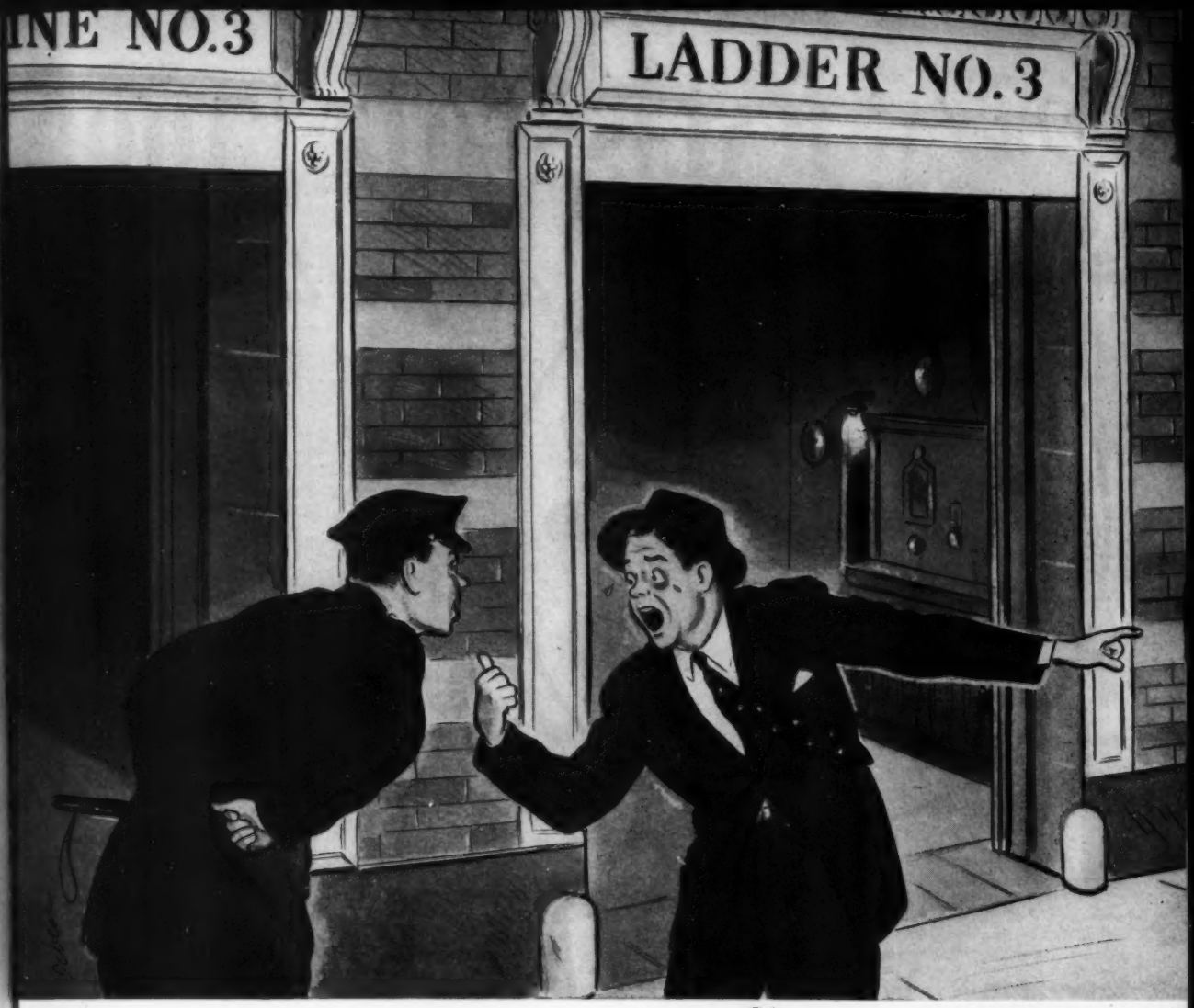
To the Editor:

I have received an inquiry from a large industrial plant engaged in war work, relative to a processing chemical known as zirconium hydride. This chemical burns with the appearance of magnesium and up to the present time the only two methods the company has found to combat fire occurring in this product are by sand or marble dust and by flooding with water. Neither of these two methods seem to be very effective and both cause considerable property damage.

Will you kindly let me know if you have had any experience with this chemical from the fire extinguishing standpoint and if so, I would be pleased to receive such information on the subject that would be of help to this company in extinguishing and controlling fire arising through zirconium hydride.

W. F. T.

Answer: A. H. Nuckolls, Chemical Engineer, Underwriters' Laboratories, Inc., has supplied the following information about zirconium hydride: "Available information on the fire hazard of



BUY MORE WAR BONDS

Gone!

When fires occur, anything can happen.

In many a city and town excited citizens have phoned in misinformation—causing apparatus to be sent to a wrong address.

Meantime the blaze made headway, while the distracted fire dispatchers tried to get in touch with men and machines.

With RCA 2-way radio at your headquarters—in every fire station—on every fire truck—on your own car—and on those of your lieutenants—you have instant communication with your entire force at all times.

There will be *many* times when RCA radio could help you save life, property, and public good-will.

RCA Emergency Communications Equipment engineers will gladly aid you to plan *now* a modern 2-way radio system that will be the last word in efficiency and convenience for practical fire department operation. RCA manufacturing facilities are employed today on war production, but we are anxious to help you at all times as much as the war permits.

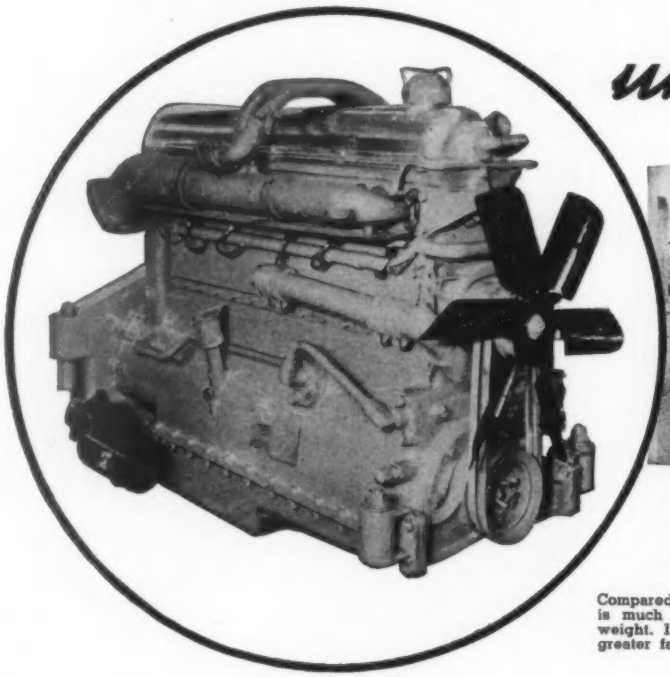
RCA

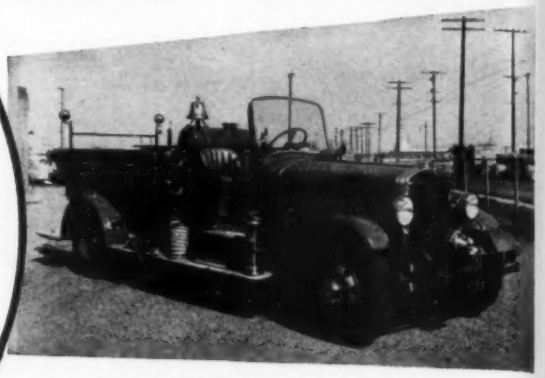
RCA EMERGENCY COMMUNICATIONS EQUIPMENT

RADIO CORPORATION OF AMERICA

CAMDEN, N. J

Put a HALL-SCOTT "400" *under the hood*





Mack, Type 19, 1,000 gallon pumper, owned by the city of Berkeley, California, repowered with a Hall-Scott "400". A Spicer fluid clutch was installed to handle the added torque of the engine, permitting powerful yet smooth acceleration that results in remarkable road performance.

Compared with former Hall-Scott fire engine units, the "400" is much more powerful, though approximately the same weight. It is more compact, of cleaner design, and has a greater factor of safety in all component parts.

. . . and enjoy completely new standards of fire engine performance!

THE new Model 400 Hall-Scott 6-cylinder engine with 5¾" bore, 7" stroke, and 1090 cubic inches displacement, is the most powerful, the most reliable, and all-around efficient fire engine unit yet built.

It is readily capable of handling a 2000 gallon pumper — a size constantly in demand by larger cities, but hitherto impracticable for want of a sufficiently powerful engine.

Its greater reliability has been proven by a period of two years testing in heavy trucks operating over a half million miles of mountainous roads. During this operation there were no major failures, and the cost of maintenance was far below that anticipated.

The Hall-Scott "400" gives *markedly superior road performance* and will deliver its full horsepower hour after hour. Like all other Hall-Scott engines, its unit-assembly design allows any given unit to be removed for servicing, a spare installed, and the apparatus returned to service while repairs are made at the bench.

HALL-SCOTT *Motor Car Company*

A DIVISION OF AMERICAN CAR AND FOUNDRY MOTORS COMPANY

Factory and General Offices: 2850 Seventh Street, Berkeley, California

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Please mention FIRE ENGINEERING *when writing advertisers*

zirconium is still in the development stage, so to speak, particularly with reference to its fire fighting phases. Work on this is still in progress by the Committee on Hazardous Chemicals and Explosives of the National Fire Protection Association, but report will probably be published soon in 'Tables of Common Hazardous Chemicals'.

"There is no doubt that zirconium is highly flammable when dry, and is comparatively easy to ignite even by static electrical discharges. Much remains to be learned about its fire fighting phases, but it has already become apparent that ordinary applications of carbon dioxide, water (in small streams), or carbon tertachloride are ineffective. Cases have been reported in which sand was successfully used to smother zirconium fires, and it appears likely that graphite would serve the same purpose. Reports indicate that such fires have been controlled by foam despite the fact that it contains moisture and carbon dioxide.

Tire Repair Solvents

To the Editor:

What hazardous solvents and what hazards are involved in present day tire reclaiming or retreading plants, which are now to be found everywhere and what measures should be taken to make them safe?

Also do you know any reasonably safe solvent to use as a motor wash?

We used to use a mixture of 60% carbon tetrachloride and 40% gasoline for this, and later used carbon tetrachloride and "mineral spirits."

As carbon tetrachloride is now very hard to obtain, I have been trying to find a safe solvent to use.

W. W. S.

Answer: The principal solvent used is gasoline. Even with synthetic rubber it is probable that a rubber cement, using gasoline as a base, is still used in cementing the outer wearing strip to the casing.

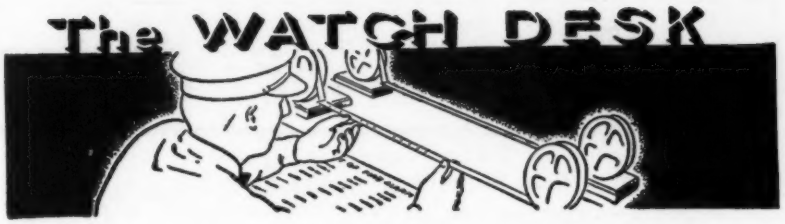
Whatever solvent is used, it should be handled in safety cans and storage should be out of doors or in a special well-ventilated room. (This information is covered in Bulletin No. 18, recently issued by the National Board of Fire Underwriters, New York, N. Y.)

For motor wash we recommend any of the cleaning liquids listed by Underwriters Laboratories, or being in a kerosene, or better, class. This includes all of the so-called solvents with a flash point of 100 degrees F.

Chief Dibble Rounds Out Twenty-Eight Years of Service

Fire Chief Joseph T. Dibble, Watertown, N. Y., completed 28 years as a member of the city fire department December 8, 1943. Joining the department at the age of 24, he was first assigned to No. 4 company. Chief Dibble was promoted through the ranks and in June, 1942 was made first assistant chief. Upon the retirement of Chief William E. Gaffney, he became head of the department on Nov. 1, 1942.

SANFORD D. DEWEY.



Our inquiring reporter overhauls the firemanic news of the day

Can't Cash Ashes!

It was a sad day for Gene Miller, Standish (Mo.). He lost his shirt, saw $21 of his money go up in smoke, and to top it all off, discovered one popular theory concerning banking was the bunk. Gene awakened on a certain morn' to find his shirt blazing from a lighted cigarette. Carefully sifting the remains of his "hard earned" from the burned shirt, he rustled it to the bank, only to learn that the rumor the government would replace currency ash with hard cash has no basis in fact!

* * *

Water Fails, Beer Dood It!

At the tavern of George Imperial, the Bronx (N. Y. C.) they usta say that water is only good to wash with. After a fire in the beer pump (of all places!!) one night had burned on despite large doses of the "loathsome stuff" somebody conceived the bright idea that mebbe "foam" would do. Nothing loath, the customers (so 'tis said) got busy with their sudsy glasses of lager—and lo and behold, before the pressure at taps petered out, they had the pesky fire under control. After all, however, it was rather mean on the Brothers who came panting up, tongues hanging out of their mouths, only to find they weren't needed!

* * *

Harlem Riot Fire Loss!

According to the New York Board of Fire Underwriters the fires connected with the riot in Harlem, last August, were settled for $81,946, involving 215 claims with 25 claims to be adjusted.

This riot was not a "race" affair, but largely the product of uncontrollable youth.

* * *

"Ball of Fire Stripper 'Burned Up'"

Stripper Betty Rowland, billed in Hollywood (Calif.) as the "red-headed ball of fire," was really burned and the reason, she said, was a lighted cigarette end which an irate wife applied to the shapely dancer's er, a, hum, "shapely hip."

Seems her dance was rudely interrupted by a loud yelp, when she passed close to a table occupied by a woman and her spouse. At office of city attorney, where Betty beseeched for a battery and assault complaint, she declared with considerable ire in her voice and fire in her eyes that the cigarette was applied deliberately. It's reported that city attorney promised to "investigate." Who wouldn't!

* * *

Hot Off the Tape

Well, the Windy City got the top prize for having made the best fire prevention record in 1943, whereat we toss an orchid to Chief "Tony Mullaney" and his good men. . . . Thanks to the unknown N. C. Contrib' who tells us that to develop rookies for its fire department, Lenoir (N. C.) trains a "rookie" squad composed principally of high school boys. . . . After policeman and fireman "struck" in Montreal (Canada) the troubles were adjusted and (we hope) all's well. . . . Clifford Johnson, Coastguardsman of Sumner (Mo.), who was a hospital patient a year as result of burns suffered in Cocoanut Grove fire, had more than 100 blood transfusions and underwent 30,000 pin-prick skin-grafts. Doctors said of him, "we learned more from him about treatment of burns than has ever been learned from any other single patient." Somebody ought to toss a few orchids to Clifford! . . . A Christmas day blaze in Wildwood (N. J.) caused $1,000,000 damage, death to watchman and fire lieutenant before being controlled by fire forces of ten communities. . . . Another general alarm fire swept store of Sears Roebuck, Atlantic City (N. J.), destroying entire Christmas stock; damage, $350,000. . . . A $750,000 fire—also general alarm—in New Haven (Ct.) endangered Yale's Sterling Library with its millions of fine volumes. . . . Ford's Wayside School at Sudbury (Mass.) was damaged to extent of $15,000 according to Chief W. E. Davison. . . . In a half million dollar blaze in Erie (Pa.) two firemen, Cletus E. Hess, 36, and George N. Scully, 38, latter a brother of Fire Chief Lawrence P. Scully, were killed when walls fell. A new $20,000 ladder truck was smashed but other firemen escaped injury. . . . Explosion of an acetylene torch which they were using to crack a safe in Philadelphia, frightened away two burglars. . . . A California Contrib' sends us item about a fire that razed a $2,000,000 winery. Two rural fire companies were unable to cope with blaze but, 'tis said, "succeeded in saving a large quantity of stored brandy!" The place is Cutler (Calif.) in case you wanna rush out there! . . . Two volunteer firemen of New Milford (N. J.), Phillip A. Kehr, Sr., 49, and Wm. A. Bliss, Chief of the Department, were killed when H & L Truck on which they were riding to a brush fire was in collision with a bus. Five other firemen were injured. . . . There was sadness in Savannah when 200 bags and several thousand pieces of Yule mail burned at that place. . . . Four false alarms by two youths, who pleaded guilty when apprehended, brought out 50 fire trucks and 292 firemen of the New York City Fire Department. . . . In another case of willful youth a high school student was held in connection with the "torch" death of his sweetheart on "a lover's lane" following a dance, and imbibing of "wine".

FALSE ALARMS

Force of Habit

A batch of German prisoners had just arrived in England and were being marched to the internment camps. Round a bend on the canal nearby a barge came slowly into view. The bargee cracked his whip to warn the lockkeeper of his coming. Immediately the prisoners broke ranks and ran in all directions.

"Hey!" roared the camp commandant.

"S'alright, sir," said a Tommy. "They've been eating so much horseflesh lately that every time they hear the crack of a whip they breaks into a gallop."

Last Word

"What's the last word in airplanes?"

"Jump."

Commandments

The children were studying the life of Moses. Said the teacher: "What did God give to Moses on the mountain?"

"The ten commandos," shouted Harry.

Black Eye

Him: "Well, I suppose you're plenty angry because I came home with this black eye last night."

Her (sweetly): "Not at all, dear. You may not remember it, but when you came home you didn't have that black eye."

Good Reason

The Army psychiatrist at the induction center eyed the prospective new soldier with suspicion.

"What do you do for your social life?" he asked the GI prospect.

"Oh," the man blushed. "I just sit around."

"Hmmmm, don't you ever go out with the girls?"

"Nope."

"Don't you have any desire to go with girls?"

"Well—sort of——"

"Then why don't you?" asked the doctor, pointedly.

"My wife won't let me."

Confession

"Did you ever write anything before," asked the young man.

"I wrote a confession story once," said the pretty young thing.

"Did the editor send it back?"

"He did better than that. He brought it back himself."

"No. 10's Mascot Is High-Hatting Us, Cuz She Has All the Points She Needs, Rationing or No Rationing!"

Purebred Draft Stock

A doctor, addressing a farmers' meeting, stated that there were more babies being born today than ever before, and that the youngsters were the finest, healthiest babies he had even seen—two things he could not understand.

A farmer in the audience spoke up: "I can give you the answer to that, doctor."

Doctor: "Very well, I would be glad to have it."

Farmer: "The husbands are all registered."

Nearsighted

Reluctantly he faced the Army oculist, who asked him to read a chart.

"What chart?" asked the draftee.

The doctor persevered: "Just sit down in that chair and I'll show you."

"What chair?" asked the draftee.

Deferred because of bad eyesight, the draftee went to a nearby movie. When the lights came on he was horrified to discover the oculist in the next seat.

"Excuse me," said the conscript as calmly as he could, "does this bus go to Albany?"

Molars

The dude and the hill-billy were both rear rank privates and occupied adjoining bunks in barracks. One day the dude inspected his toilet kit, glanced at his neighbor and demanded sharply, "Did you take my tooth paste?"

"No, I didn't take no tooth paste," came the answer. "I don't need no tooth paste. My teeth ain't loose."

A Sad Fate

"There! Broke my looking glass! Now I suppose I shall have seven years' bad luck," said Mrs. Jones.

"Don't you believe it, Mrs. Jones!" said Mrs. Brown. "A friend of mine broke hers, and she didn't have seven years' bad luck. She was killed in an explosion next day!"

Swell Time

Just received a card from a friend who is a defense worker. He writes: "Having a wonderful time and a half!"

Is That Clear?

A mother who had a daughter employed in defense work in Washington wrote to ask her just what she was doing. The reply follows:

"I work in the data-analysis group of the aptitude-test sub-unit of the worker analysis section of the division of occupational analysis and manning tables of the bureau of labor utilization of the War Manpower Commission."

Small Boy: "I'm not afraid of going to the hospital, mother. I'll be brave and take my medicine, but I ain't going to let them palm off a baby on me like they did on you. I want a pup."

Brother... what I could do with this "putt-putt" back home

Homelite Portable Generators are affectionately known in the Armed Forces as "putt-putts". Men who see and *use* them . . . around airports, or in bombers and tanks . . . have come to know them for their dependable performance under the toughest possible conditions. Those men can see right now how ready and able these new, handy "putt-putts" will be after the war . . . for operating floodlights, electric tools, radios, signal systems and many other devices.

There's no doubt about it, ex-service men will be among the best supporters of Homelite Portable Generators . . . for right now, these "putt-putts" are supporting them, wherever they are, in every possible way.

HOMELITE CORPORATION

PORT CHESTER, NEW YORK

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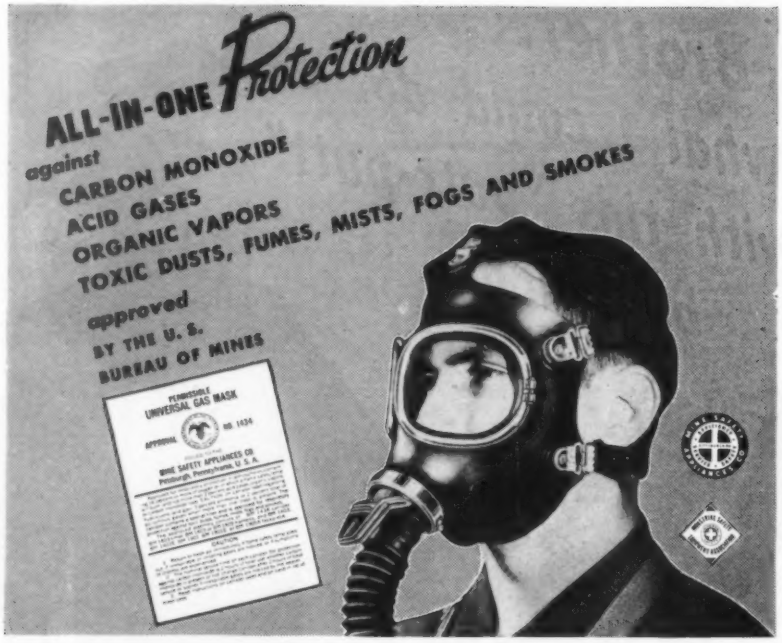


M-S-A *All-Service** GAS MASK
MODEL S CANISTER . . .

Model S Canister with Standard Canister in background.

The M.S.A. All-Service Mask with Model S canister meets respiratory protective requirements against poisonous industrial gases, toxic dusts, mists, smokes, etc.—singly or in combinations (including carbon monoxide); is officially approved by the U. S. Bureau of Mines, and offers maximum comfort and convenience in service. Special features of the canister are its uniquely-designed large-area filtering element for smokes, dusts and fumes—of particular value under certain emergency conditions—and lower resistance to breathing.

The M.S.A. All-Service Mask is equipped with the famous All-Vision facepiece, which allows unobstructed vision at all angles, fits comfortably without drawing or binding, and affords a perfect gas-tight seal. Complete working freedom is permitted by the strong, durable harness, which is easily and quickly put on or removed.

Both the Model S All-Service Mask canister and the Standard All-Service canister are interchangeable in the harness. A strongly constructed fiber carrying case accommodates the mask equipped with either canister, together with a spare. To adapt All-Service cases now in use for the Model S canister, it is necessary only to remove a small fiber bracket. Write for complete details on the M.S.A. All-Service Mask with Model S and Standard canisters, in descriptive bulletin No. EA-8!

STANDARD MODEL ALL-SERVICE MASK

Providing protection for many years throughout industry against poisonous industrial gases, smoke and fumes encountered singly or in combination—including carbon monoxide—the M.S.A. All-Service Mask with Standard Model canister is still available.

Officially approved (Approval No. 1405) by the U. S. Bureau of Mines.
*Trademark Reg. U. S. Pat. Off.

MINE SAFETY APPLIANCES COMPANY
BRADDOCK, THOMAS AND MEADE STREETS · PITTSBURGH, PENNA.
District Representatives in Principal Cities

WHAT'S BURNING?

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of January, 1944. These figures, compiled from the telegraphic reports, are based on estimates made at the time and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent losses in thousands of dollars.

Month Ending January 31	Losses in Thousands of Dollars
Field, B. C.—Power plant of Base Metal Mining Corp. destroyed	80
Richmond, Ind.—Richmond Coliseum destroyed	50
Franklin, Pa.—Park Hotel damaged	250
Philadelphia, Pa.—Metalcraft Products Co. bldg. damaged	125
Watertown, Mass.—1,000,000 feet of lumber at Kimball Lumber Co. yard destroyed and also a 150-foot storage bldg. and a truck	125
Ware, Mass.—Two three-story factories destroyed and another factory and a large mansion damaged	750
Buffalo, N. Y.—A. S. Beck shoe store bldg. damaged	80
Camp Campbell, Tenn.—Main officers club destroyed	100
Long Beach, L. I.—A block of four brick bldgs. containing five stores and an apartment house damaged	170
Clinton, Okla.—Business block housing Lintz Dept. store, Blunck Art Studio, Art Tatum and Lert Tooker insurance offices, offices of three physicians and two dentists destroyed	100
Middleton, Ohio—Downtown business block damaged	80
La Grande, Ore.—Union Pacific roundhouse and four locomotives destroyed	60
Newport, Ore.—U. S. Yaquina Coast Guard Station damaged	50
Pottstown, Pa.—Three-story bldg. and two adj. bldgs. damaged	170
Waterbury, Conn.—A. H. Wells & Co. Inc., war plant damaged	125
Opelousas, La.—Bldg. and contents of the Plaisance Wholesale firm damaged	50
Mt. Pleasant, Mich.—McArthur-Strange bldg. occupied by the Ohio Oil Co. damaged	80
Carrollton, Mo.—Mattingly Brothers store damaged	70
Pomona, Cal.—Pacific Winery bldg. destroyed	60
Toronto, Ont.—Bay Croft Inn destroyed	80
Mobile, Ala.—Officers' Club at Brookley Field damaged	125
Pine Bluff, Ark.—Watson Chapel school bldg. damaged	60
Washington, D. C.—Hot Shoppe damaged	50
Dublin, Ga.—Cottonseed storage house of Southern Cotton Oil Co. destroyed	125
Marysville, Mich.—Five of six bldgs., including equip. of Morton Salt Co. Plant, destroyed	3000
Helena, Mont.—Five story State Unemployment Compensation Comm. bldg. destroyed	80
Lackawanna, N. Y.—Buffalo Brake Beam Co. plant damaged	50
Utica, N. Y.—Three-story bldg. damaged	75
Suffolk, Va.—Parker Peanut Co. damaged	60
Charleston, W. Va.—Four-story bldg. damaged	170
Springfield, Mass.—Kennedy's butter store damaged	170
St. Peter's, N. S.—Entire business section of southern Cape Breton damaged	80
Toronto, Ont.—Grace United Church destroyed	50
Gloucester, Mass.—Coast Guard barracks at Rockholme	170
Dover, N. H.—Large garage, four war transportation buses and a taxicab damaged	50
Toledo, Ohio—Recreation Center bldg. occupied by Woolworth and Kroger Grocery stores, Colony Food Market, Colony Bowling Alley, State liquor store and several smaller stores together with their contents damaged	425
New Lexington, Ohio—Plant of T. F. Mooney Foundry destroyed	50
Oklahoma City, Okla.—Warner Theatre destroyed	60
Irwin, Pa.—Norwin Union High School, North Huntington Township damaged	225

CLASSIFIED ADVERTISING

Bids Wanted, For Sale and Help Wanted, $5 per inch. Position Wanted, $2.50 per inch

WANTED SALESMEN

Fire Equipment and Uniform salesmen to sell on the side Morning Pride Protected Rubber Firecoats, with Wing Freedom Sleeves, Chest Protector, Face Protecting Collar, also Firepants and Mitts. Write Morning Pride Mfg. Co., 1986 Home Avenue, Dayton 7, Ohio.

FOR SALE

New Fire Equipment

PORTABLE PUMP, NEW—150 gal. 4 cylinder complete with suction and strainer. Also all kinds of fire fighting equipment including fire hose. Write for prices on all your requirements. Geo. F. Doray, 1006 Ballantyne Road, Syracuse 7, N. Y.

Mullens, W. Va.—Three business houses owned by J. E. Wyatt damaged..... 170
Valleyfield, Que.—Chateau Salaberry Hotel damaged 80
Easton, Md.—Avon Hotel damaged..... 60
Cambridge, Mass.—Bay State Smelting Co. and adj. bldg. in Boston and Maine Railroad yards damaged..... 80
Omaha, Neb.—Two-story bldg. housing Searle Petroleum Co. destroyed..... 50
Oklahoma City, Okla.—Wagles Recreation Alleys of Tulsa destroyed..... 55
Decatur, Tenn.—the consolidated Meigs County High and Grammar School bldg. damaged 65
Syracuse, N. Y.—Five story brick apt. house in downtown section damaged... 250
Norfolk, Neb.—First Congregational Church destroyed 80
Cottage Grove, Ore.—Scott Sawmill plant destroyed 80
Chicago, Ill.—Bldg. and stock of Liggett Drug Store damaged..... 50
Manitowoc, Wis.—Two-story bldg. occupied by Sears, Roebuck & Co. destroyed 100
Klamath Falls, Ore.—Hannon Starch Refining Co. destroyed..... 50
Houston, Tex.—A. C. Horn Co. paint plant damaged 80
Redding, Cal.—Business bldg. of the Sprouse-Reitz Co. and Seaford Cafe damaged 50
Durham, N. H.—B. W. McIntire clothing store and Wildcat restaurant destroyed.. 50
Marietta, Ohio—Three-story storage bldg. of the American Iron Supply Co. damaged 110
Youngstown, Ohio—Clear Silk apparel shop and offices above in two-story business bldg. damaged 50
Huntsville, Ont.—Warehouse of Anglo-Canadian Leather Co. damaged..... 80
Vandalia, Mo.—Plant of the Vandalja Mail, newspaper, and the W. S. Waters & Sons furniture store, damaged..... 80
Dover, N. H.—M. and M. Bakery garage damaged 50
Welch, W. Va.—McDowell Armature & Machine Works damaged..... 80
Atlanta, Ga.—Fourth Service Command Ordnance Base Shop and a warehouse at Atlanta Ordance Depot destroyed. Depot is at Forest Park, ten miles south.. 1700
Toledo, Ohio—Two five-story brick bldgs. occupied by Harry's Auto Store and Boston News Store destroyed; also Hirsch Laboratories, Ohio Fruit Co., Fain's Credit Clothing Store, Great Atlantic & Pacific Super Market and Surline & Co. damaged 425
St. Hyacinthe, Que.—Four stores and overhead dwellings destroyed..... 170
Wapakonet, Ohio—Wapakonet Machine Co. plant destroyed 170
Willamina, Ore.—Foster Mills damaged.. 80
Wilkes-Barre, Pa.—Plymouth Borough business district damaged..... 60
St. Louis, Mo.—Factory of the E. H. Baare Mfg. Co. damaged..... 50
Fort Payne, Ala.—Bldg. housing Christopher Motors and Fort Payne Bowling Alleys damaged 50
Tuckerman, Ark.—Tuckerman school bldg. destroyed 50
Fresno, Cal.—Stewart & Nuss asphalt plant near Herndon destroyed..... 80
Detroit, Mich.—Four wooden warehouses at the Fort Wayne Army Ordnance Depot destroyed 1700
Holtville, Cal.—Half block of business section including cafe, hardware store, dry

Fabco CUSTOMBILT SPEEDY & POWERFUL

FABCO Custombilt with Hall-Scott 200 H. P. engine and WATEROUS CD-1 750 Centrifugal Pump

. . . and its WATEROUS PUMP packs a wallop, too!

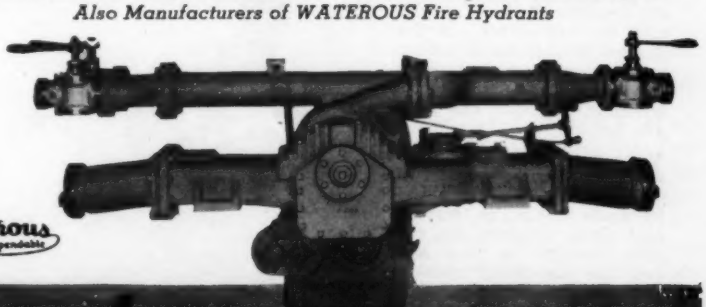
When a Fabco makes a run, it gets to the fire in a hurry. Then the WATEROUS Pump takes over—with a wallop that firemen like. The F. A. B. Manufacturing Company, Oakland, California, use WATEROUS PUMPS, knowing they will enhance the Fabco reputation for ruggedness and outstanding fire fighting ability.

WATEROUS Fire Pumps have been putting out fires for 58 years. They are precision built, with the high quality and extra strength in *every* part that assures dependability. For enduring pump satisfaction—specify WATEROUS on *your* new fire engine.

Literature on Request

WATEROUS COMPANY • ST. PAUL, MINNESOTA

Also Manufacturers of WATEROUS Fire Hydrants



WATEROUS

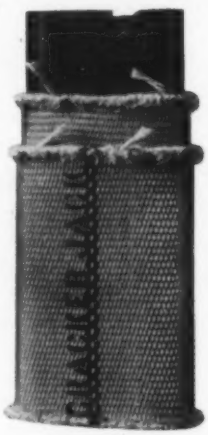
CENTRIFUGAL-ROTARY

FIRE PUMPS

Stands the Gaff!

Now being made with Ar-Polene, the American synthetic—

Crackerjack Fire Hose Can Take It



The same qualities that have made this hose the standard on the Pacific Coast ever since 1905 are being maintained today.

AR-POLENE

—the American synthetic, is blended in various ways to meet each particular requirement. Yes, you can depend upon fire hose made with Ar-Polene!

The

AMERICAN RUBBER

Manufacturing Co.

Factory and General Offices:

Park Avenue and Watts Street **Oakland 8, California**

Get Ready NOW with your

POST WAR PLANS

With the Post War Era coming more and more into focus, EASTMAN Company is looking forward to the time when they can once again furnish our friends in the fire service the equipment they need and demand.

Eastman Products have always been the choice of fire departments all over the country. We can assure you that the products of the experience and service we have given to our armed forces, will surpass anything Eastman has given you before.

Make your Post War Plans now and be ready when the peace is won. Let EASTMAN Products, such as nozzles, deck pipes, adapters, etc., ease your problem as they have over the past many years.

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Sole Manufacturers of
EASTMAN - BARKER PRODUCTS

★

SAMUEL EASTMAN COMPANY, Inc.
CONCORD, N. H.

goods store, drug store, beauty shop, hotel and Southern California Telephone bldg. burned 350

Dumas, Tex.—Fraser Grain Co., two grain elevators and 70,000 bushels of wheat destroyed 150

Forrest City, Ark.—Bldgs. housing Laser's Dept. store and David's grocery damaged 50

Pittston, Pa.—Breaker of the Valley View Coal Co. in Plains Township destroyed.. 80

Dubuque, Ia.—Two-story warehouse bldg. owned by the J. F. Stampfer Dept. store destroyed 125

Woodmere, L. I.—Milk, Inc., dept. store and the Thomas Roulston grocery store damaged 80

Hagerstown, Md.—One-story brick bldg. housing a tire concern and garage damaged 50

DuPont, Penna.—Three story frame and stucco mill of the Gutstein Dress Co. destroyed 80

Bethel, Conn.—Three-story bldg. known as Old Bethel Silk Mill destroyed..... 50

Fair Lawn, N. J.—Radburn Plaza building damaged 225

Newark, N. Y.—Business block damaged. 80

Muscatine, Ia.—Palace Theatre destroyed.. 50

Milford, Conn.—Seven Gales Inn destroyed 50

Chicago, Ill.—Two sections of Gary Steel Supply Co. destroyed..... 50

Louisville, Ky.—Health Food Products Co. destroyed 60

Hanover, N. H.—Nugget Theatre destroyed 60

Plainfield, N. J.—Monday afternoon clubhouse destroyed 50

Washington, N. C.—Furniture store, a warehouse containing 22,000 bags of Government-owned peanuts and four dwellings destroyed 150

Wolf Point, Mont.—State Line night club destroyed 100

Tilton, N. H.—Williams Hall, latest addition to the Golden Rule Farm for Boys destroyed 50

Chester, Pa.—Chinese restaurant and Famous Hotel damaged..... 35

Weaversville, Pa.—Barn on farm of Allentown State Homeopathic Hospital destroyed 50

Norfolk, Va.—Ballard Fish & Oyster Co. and Keeling-Easter Co. lime manufacturer destroyed 250

Shelton, Wash.—Shelton Moose Hall destroyed 50

Hansford, W. Va.—Major portion of plant of Federal Foundry Supply Co. destroyed 100

Chief Lawton Honored

Former Chief Joseph S. Lawton, who from 1899 until his retirement last January 4, has been associated with the Newport, R. I., Fire Department, was honor guest at a testimonial dinner given at the fire headquarters by eighty permanent, call and retired firemen.

Chief Lawton received an easy chair and a smoking stand from the members of his department. Captain James M. Lacey, President of the Firemen's Relief Association, presented him with a scroll, and a resolution in a gold frame from the Mayor and the Board of Aldermen was presented by Chief Abel S. Eldridge.

Chief Lawton joined the department as a substitute on Hook and Ladder 1 in 1899. He was made a paid call man there in 1901, first assistant engineer in 1906, deputy chief in 1914 and Chief in 1927. He did much to install modern apparatus and was responsible for the two-platoon system.

He has been succeeded by Deputy Chief Abel S. Eldridge, who was designated as drillmaster by Chief Lawton in April, 1932, and sent to Providence for a month's instruction. He took courses of instruction in other cities, including the New York Fire School with the view to inaugurating a system of training in the department. In 1938, he was named deputy chief and in the recent absence of Chief Lawton, he served as acting Chief.

Chief Eldridge originally entered the department when he was named a substitute call man in 1919. He was elected to the permanent force in June, 1923.

WAR FARE

Alarms and Discussions Clipped and Culled from the War News of the Day, of Interest to the Fire Service.

Hot Off the War Tape

Over 150,000 gallons of fuel oil went up in smoke in big fire at Fentress Plant, near Norfolk (Va.). . . . A chemist was killed, two others injured critically in explosion followed by fire at Gibbstown (N. J.) explosives plant of I. E. duPont de Nemours & Co. . . . Two Brooklyn (N. Y.) boys discovered an old shell, tossed it into a bonfire in a vacant lot. It was a live 55 mm. relic of World War One—and exploded, killing both of them. . . . "A million points' worth" or several tons of groceries went up in flame and smoke when large truck and semi-trailer overturned and burned after striking bridge abutment near Phoenix (Ariz.). . . . Eight oil tank cars burned after head-on collision of two M.P. trains near Palestine (Tex.). . . . Sailor at the U. S. Naval Academy, Annapolis (Md.) died following injuries received during a fire drill. . . . Sixteen flyers were killed on same air field within an hour when two bombers crashed, one burning. . . . It is said that London's soil has been so chemically changed by bombs and fires that almost 100 species of plants alien to the city have sprung up and are growing in the devastated areas (Thanks, Contrib. K. L.). . . According to the dopesters, more Americans have lost their lives in fires since 1890 than have thus far been killed in all the wars fought by the U. S. (Reader R. U. B.). . . . Honolulu had an air raid alert—real one—early in December. . . . Seventeen persons were injured, seventy more left homeless in fire which destroyed Van Court Inn, Roselle (N. J.). Ten firemen were treated on scene by Civilian Defense Emergency Hospital truck. Companies from Roselle, Roselle Park, and Rahway battled blaze. . . . It was reported on Dec. 11 that flames which had burned for fifty-two days in an oil tanker following a collision off the Florida Coast had finally died out, permitting search for bodies of missing men. (Thanks, Jim McMillan). . . . Three boys, experimenting with "home made bombs," caused consternation among residents of nation's capitol. They tried 'em out "under a R. R. trestle." Nice boys—nice place! Nice punishment—they were allowed to go home "in the custody of their parents." . . . Eight persons were killed and several others injured in blast at Phoenix Naval Stores Co. plant, near Gulfport (Miss.). . . . A reader tells us four civilian employees of the Pine Bluff Arsenal, Pine Bluff (Ark.) were killed in an accident. Authorities assure us there was "no sabotage." . . . A three alarm fire damaged a Liberty ship under construction at Baltimore (Md.); flames were fed by grease and oil. . . . During their parents' absence—un huh, they were war workers, the woman earning $30 a week at aircraft plant—an electric heater set fire to newspapers in their home, in N. Tarrytown (N. Y.) and by time the Brothers reached the scene, two children had died. Commenting on tragedy, Dr.

CRAZY HORSE was always ready to fight

Hot tempered chief of the Sioux tribe, Crazy Horse, gave the white man plenty of trouble until he and his followers were decisively beaten by General Nelson A. Miles at the battle of Wolf Mountain, January 7th, 1877.

So is the

INDIAN

FIRE PUMP always ready to fight FIRES—*either inside or outside*

Note how 5-gal tank carries high on the back. Carrying straps are adjustable.

An *INDIAN FIRE PUMP* carries slung on the back like a pack basket and enables a fireman to get around fast without stopping to pick up the extinguisher. Fires in buildings, rooms, partitions; fires in attics, on roofs and in rubbish piles are put out quickly with *INDIAN FIRE PUMPS.* They stop grass fires before they spread.

Remember *INDIAN FIRE PUMPS* use nothing but *clear water.* No chemicals to buy. No wonder hundreds of fire departments swear by *INDIAN FIRE PUMPS!* One trial will convince you what they can do. Tank is air cooled to prevent dampness reaching carrier's back. Order *now!*

D. B. SMITH & CO.
406 Main St., UTICA, N. Y.
PACIFIC COAST BRANCH
Hercules Equipment & Rubber Co.
435 Brannan St., San Francisco, Cal.

SEND FOR CATALOG, PRICES AND FULL INFORMATION

1-2-3--OUT!

Fire takes a fast knockout when PLUS-FIFTY DUGAS Dry Chemical comes into the picture. For PLUS-FIFTY DUGAS Dry Chemical brings you fire-stopping power of amazing swiftness, sureness.

As speedily as it strikes flames, PLUS-FIFTY DUGAS Dry Chemical releases a large volume of fire-smothering gases that quickly prevent small fires from becoming big ones. And PLUS-FIFTY DUGAS Dry Chemical is harmless to both men and machines.

PLUS-FIFTY DUGAS Dry Chemical comes to you ready for instant fire-fighting duty. Stays that way, too... won't deteriorate during storage.

Write us today for additional facts, along with priority information regarding DUGAS Fire Extinguishing Equipment.

Approved by Underwriters' Laboratories and Factory Mutual Laboratories.

NEW PLUS-FIFTY duGas REG. U. S. PAT. OFF. DRY CHEMICAL

MODEL 15 HAND EXTINGUISHER

CHART showing characteristics of all types of approved hand fire extinguishers sent FREE on request.

DUGAS ENGINEERING CORP.
OWNED AND OPERATED BY
ANSUL CHEMICAL COMPANY, MARINETTE, WISCONSIN

Amos O. Squire, Westchester County Medical Examiner, said: "It's a fine business, leaving little children alone and unprotected while parents work in defense plants . . . this is called patriotism. But I believe in many cases it's nothing more than money-mania." . . . **Fire losses in the first 11 months of 1943 were higher than the total for any year since 1932.** . . . In England, Gloucestershire Farmer's Union wants a government order prohibiting smoking on farms while threshing is in progress. . . . Fire in a jetty at Royal Canadian Naval Base at Shelburne (Nova Scotia) nearly destroyed five valuable ships, which escaped in nick of time when mooring lines were cut.

Correspondence

The Facts on the Tule Lake Incident

To the Editor:

In the December, 1943, issue of FIRE ENGINEERING, I noticed an article by Bob Greenock, entitled "Japanese Internees Sabotage Fire Apparatus", in which he makes the statement: "No public statement has been made by the Army or the War Relocation Authority about the extent of damage done by the Japs to fire fighting equipment at this camp."

In the capacity of Fire Protection Adviser for the War Relocation Authority, I have visited the Tule Lake Center many times before the segregation program, and once since, during the last week of November. Therefore I should like to call to your attention some pertinent facts in connection with the above statement.

At Tule Lake, as in the nine Relocation Centers, the evacuees man the fire department and fire prevention bureau, under the supervision of a Fire Protection Officer and two Associate Fire-Protection Officers. They are well trained, and would do credit to any city in their ability and performance of their duties. They are proud of their record of low fire losses, which is far better than the average city of comparable population.

When I arrived at Tule Lake on November 23, 1943, I found the fire department operating normally. Evacuees were still manning the fire department, conducting fire prevention inspections, and receiving the same cooperation from the residents that had always been the case. The firemen were proud of their jobs, and very jealous of their record. Some had served in fire departments of other Relocation Centers, and some had been firemen at Tule Lake before segregation.

I inspected every hydrant, and found all but one in excellent working order. Under normal conditions, considering the type of hydrants on this Center, I would have expected to find more in need of service. They are not the ordinary type found in most cities, but are four-inch standpipes with a National Standard 2½-inch male outlet. The valve sets on the water main level, and has to be opened with a key. A piece of clay pipe is provided to keep the valves accessible. These were installed when the Center was built because regular hydrants could not be obtained at that time, and there was urgent need to complete construction. They were to be re-

M&H

HYDRANTS
VALVES
and
Pipe Line
Accessories

A. W. W. A. HYDRANTS *Underwriters Approved*

Conform to American Water Works Association specifications. Approved and listed by Underwriters' Laboratories and Associated Factory Mutuals. Well known and widely used for many years.

SPECIAL TRAFFIC MODEL (shown at right) is designed to yield at ground line under impact, repair being simply renewal of breakable bolts and breakable coupling on stem. Dry top, revolving head, easy to lubricate. High efficiency because barrel diameter not reduced and there are no working parts or obstructions in waterway.

VALVES: A. W. W. A. types, iron body, bronze mounted with double-disc parallel seat or solid wedge type. Non-rising stem, outside screw and yoke; or with sliding stem and lever. Also furnished hydraulically operated. Square Bottom type operates in any position. All are rugged and dependable, made of best material with highest quality workmanship.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

placed later with the standard type, but this has never been done. Considerable difficulty has been experienced with the nuts coming loose on the valve stems of the control valve, and because of their location, they are hard to repair satisfactorily. This was the trouble in the only hydrant that was not in excellent working order.

In the first month of operation at Tule Lake, another difficulty was experienced with these hydrants. The clay pipe housing the valve stem was installed, in most cases, at or below ground level, and these were sometimes filled with sand by children playing around them or soil drifting into them. Assistance of evacuee Boy Scouts was enlisted, and this difficulty was completely stopped by July 15, 1942. Covers were provided, and these were raised slightly higher than ground level. This appears to be the basis for rumors of sabotage of fire hydrants.

The fire alarm system consists of a number of mine safety type telephones terminating at a switchboard in the fire station, the same type as is found in many Army camps. This system has never been tampered with since it was installed, and the only trouble experienced at any time was the burning out of one or two signal lights on the board. These were replaced by the telephone company, and they reported there was nothing irregular in that failure. That was the extent of "sabotage" to the fire alarm system.

On October 13, 1943, a fire was reported in Block 25 of the Tule Lake Center. Engine Company No. 3, while responding to this alarm, was traveling faster than the twenty-five mile limit now effective at all Centers for fire apparatus. They received a signal from an evacuee police officer directing them to turn at the intersection which they had already entered. In attempting to comply, the apparatus overturned and injured nine men. No other apparatus has been damaged. Most fire chiefs have considerable difficulty in controlling speed of fire apparatus responding to alarms, and there are records of many such accidents in normal cities throughout the land.

When Tule Lake became a segregation center, the size of the Army detachment stationed there was increased, and additional fire apparatus was provided to care for the enlarged military area and evacuee housing necessary for the increased number of residents. This explains the additional fire apparatus sent to that Center.

There was no damage to fire fighting equipment other than normal wear and depreciation.

Very truly yours,

WILLIAM E. HOFFMAN,
Fire Protection Adviser
War Relocation Authority

Double Jacket Hose Available

By a recent revision of Order L-39, the Governmental Bureau of the War Production Board has been enabled to grant priority for double jacket hose to practically any municipal fire department.

Thus it will not be necessary for municipal departments to take single jacket hose in the future, when double jacket hose has been requested.

"STRETCH ANOTHER LINE"

He really doesn't care whether the hose has a synthetic rubber or natural rubber lining—what's wanted is a hose that will behave well in use and will withstand *hard* use over a long period of time.

Best assurance of getting this desired high quality in fire hose today is to rely on a manufacturer who has long, thorough knowledge of rubber compounding and adequate research, development and production facilities.

The same skill, same character of workmanship and same careful selection of raw materials that built the reputation of Eureka Fire Hose are still being applied to Eureka's Multiple-Woven and other types of hose with synthetic rubber linings.

If you have not yet received the valuable and important Eureka wall chart, "Directions for Care of Fire Hose," request a copy or copies today. There is no obligation and your request will be given immediate attention.

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Division of United States Rubber Company

1230 SIXTH AVENUE • ROCKEFELLER CENTER • NEW YORK 20, N. Y.

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- Combines Siren with Flashing Beacon
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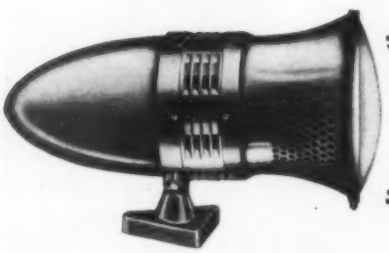

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For your own safety — get the best! This SIRENLITE is modern — dependable and streamlined. Made in the world's largest siren factory — it is precision built and combines a shrill siren with a powerful flashing red light, a combination that will clear a path through the heaviest traffic — day or night, with perfect safety. The cost of this combination is only slightly greater than that of the siren alone, and nowhere near the cost of the siren plus a flashing light purchased separately. The SIRENLITE No. 20 is furnished complete and ready for installation.

It carries the guarantee of more than 30 years of exclusive siren manufacturing. Stick to Sterling and Be Safe.

Write for detailed literature.

STERLING SIREN FIRE ALARM CO., Inc.
55 Allen Street Rochester, New York

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FIRE PUMPS HALE CONSHOHOCKEN PA

Hale pumping units, like Hale Fire Pumps, are known for consistent reliable performance.

Pioneered in 1936, used throughout the world, the Hale 500 GPM pumping units set new high standards of performance.

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Write today for the Catalog and Folders on the complete line of HALE PUMPS

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

Chief Granger To Complete Fifty Years of Service

On March 17th, 1944, Cleveland's Fire Chief, James E. Granger, will have completed his fiftieth year in the Cleveland Fire Department, the last thirteen years he has served as Chief of the Fire Department.

Chief James E. Granger

Jim Granger was born May 21, 1875, in Cleveland, Ohio. His grandfather, a volunteer fireman, lost his life fighting a fire, and his father served as a volunteer fireman and later a city policeman.

In his early school days Jim Granger had secret ambitions for a military career and burned a lot of midnight oil studying and hoping to some day attend a military school. His ambitions were "nipped in the bud" when his mother died leaving him the sole responsibility of a brother not yet a year old. Later Jim Granger was compelled to leave school and seek work.

During the year 1893 a serious depression cut short his employment and he found himself a member of the Militia, Company K 5th Infantry, Ohio. His Company was sent to the Chicago World's Fair as the "Herrick Videtts," Myron T. Herrick partially financing the trip. Returning from Chicago, Jim Granger found working conditions as bad, if not worse, than when he left. So, when the City of Cleveland obtained funds to build several fire stations and add more companies, martial-minded Jim Granger was one of the first to take an examination for the job, which he passed with flying colors.

After serving a two-year probationary period he became the proud possessor of a front piece for his cap. This first figure "14" which designated him as a bona fide member of Engine Company No. 14 brought him more real pride than his present rank.

From that time on his rise in the Department was phenomenal. On May 3, 1898, he was promoted to Lieutenant, being the youngest man ever to take and pass the examination. He was promoted to Captain, September 23, 1903; to Battalion Chief, February 19, 1911; to Assistant Chief, August 1, 1914, and to Chief of the Department on March 17, 1931.

An interesting episode in the Chief's life occurred on March 16th, 1931, when

the Director of Public Safety summoned him to his Office to be sworn in as Chief of the Department. Chief Granger appeared in the Director's Office in full uniform to be greeted by a host of friends and admirers there to witness the appointment. When the Director asked the Chief to come forward and take the stand to take his oath, Chief Granger surprised the Director and the audience by asking a postponement of the ceremonies until the following day which would be St. Patrick's Day. When asked for a reason, Chief Granger said that his original appointment on that day was like a gift from heaven and brought new life to him, and if possible he would like to be designated Chief on the anniversary of that occasion. Consequently, on St. Patrick's Day, March 17, 1931, the Chief appeared in the Director's Office wearing a green tie, an annual observance on St. Patrick's Day, and was sworn in as the Chief of the Fire Department. The Director was the first to congratulate him and commended him on his humility in emphasizing his humble beginning on a day of distinction.

Chief Granger is responsible in a great measure today for the accomplishments of the Fire Department. Alert, aggressive and always with an eye for the future, he fought for the interests of the Department until he gained his end.

Maury Maverick Now with Smaller War Plants Corporation

Maury Maverick, former head of the Government Division of the War Production Board, has been appointed Vice Chairman of the WPB in charge of the Smaller War Plants Corporation and as a member of the Board of SWP.

Mr. Maverick was for twelve years a lumber dealer and home builder in San Antonio, Texas, with experience in the manufacture and retail sale of lumber and in mortgage financing. He has served two terms as a member of Congress and one term as Mayor of San Antonio.

In August, 1941, Mr. Maverick entered the Office of Price Administration and Civilian Supply, handling prices and civilian supply problems for the U. S. territories. Later he transferred to the Office of Production Management to handle priorities for cities, towns, counties and states, and shortly after the War Production Board was set up he organized the WPB Government Division, which he has since headed.

Succeeding Mr. Maverick as head of the Government Division is Arthur G. Eaton.

War Plant Destroyed by Fire

A seven-alarm fire on December 24 destroyed the machine shop of the Modern Collet and Machine Company, in Ecorse, Mich., together with war material being produced there. The fire, which did damage estimated at approximately $50,000, broke out in the boiler room, apparently from the overheated oil furnace.

Fire equipment from Ecorse, River Rouge, Wyandotte, and Detroit was called as the factory blazed. The fire broke out at 12:37 a. m., and spread rapidly as the furnace oil caught.

The ACME FULL VISION All-Purpose Type FD GAS MASK

IS NOW APPROVED BY

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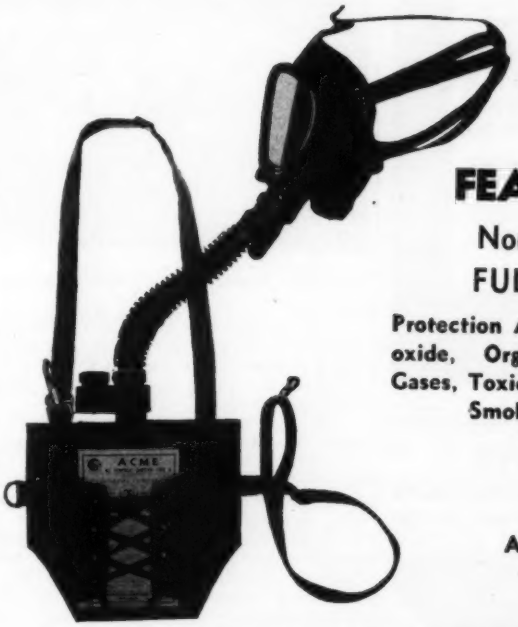

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Protection Against Carbon Monoxide, Organic Vapors, Acid Gases, Toxic Smokes, Fumes and Smoke Suffocation

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THE New WHEAT
Rechargeable Spotlight
MODEL 158
2500 FOOT BEAM
25000 CANDLE POWER
1000 HOURS OPERATION
Critical Materials Reduced to a Minimum to insure Availability
FEATURES
★ Positive "non-spill" Construction
★ Less expensive Operation than dry cells
★ Free use of Hands. Light carries conveniently on Shoulder Strap
★ Weighs only 92 ozs. complete
★ Simple to Charge and Water No need to take Lamp apart
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FIREMAN'S UNIFORM CAPS
UNION MADE PROMPT DELIVERY
No. 342
Wentworth Fireman Caps are made of the Highest Quality Standard Materials available and by the Best Skilled Union Craftsmen in all the New and Standard styles. Our 47 years of experience and skilled workmen guarantee you AMERICA'S GREATEST CAP VALUE in all WENTWORTH FIREMAN CAPS.
No. 441
Write direct for latest circular and prices or see your local dealer.
WENTWORTH-FORMAN CO., INC.
578b Washington St., Boston, Mass.
Manufacturers
Fireman Cap Specialists for Over 47 Years

Manufacturers' Announcements

Fire Extinguisher Operates Single Handed

Speed and maneuverability are all-important in combating the sudden "spot" fires that constantly menace machine shops, production lines, power houses. Keeping these factors in mind, Randolph Laboratories, Inc., Chicago, Ill., has produced a carbon dioxide fire extinguisher that requires only one hand in operation from the moment the unit is grasped until the fire is completely out.

Carbon Dioxide Extinguisher in Operation

"Model FF-4," latest in Randolph's 4 lb. CO_2 series, features a self-aimed, fixed discharge horn, and a thumb-operated trigger valve that releases a penetrating blanket of carbon dioxide.

The operator grasps the extinguisher's arched-steel handle, while the thumb presses the trigger directly above. The fire-resistant horn, permanently regulated to fixed firing eliminates the necessity of making aiming adjustments.

Additional information on this extinguisher may be obtained from the manufacturer, Randolph Laboratories, Inc., 8 E. Kinzie Street, Chicago, Ill., on written request.

McNeely with Ansul

H. V. Higley, President of Ansul Chemical Company, Marinette, Wis., has announced the appointment of R. C. McNeely to direct its advertising. Mr. McNeely has a background in the advertising field extending over a period of twenty-two years.

His last connection was with Signal Electric Manufacturing Company, Menominee, Mich., as sales and advertising manager, which post he held for twelve years. Prior to that he was advertising manager for the Lloyd Manufacturing Company of the same city.

Mr. McNeely will handle the advertising duties for both Ansul and its subsidiary, Dugas Engineering Corporation.

Kerotest Moves New York Office

The Kerotest Manufacturing has moved its New York City office to Room 3206 Lincoln Building, 60 East 42nd Street. The telephone numbers are Murrayhill 2-4816-7, and the postal district New York City 17. The Kerotest home offices and plants are located at Pittsburgh, Pa.

EDDY
Fire Hydrants
Are given preference by so many fire protection and water works men because they know that more than half a century of experience goes into their manufacture and they embody valuable and exclusive features.
Write for the Facts
EDDY VALVE CO.
Waterford, N. Y.

USE Shuredry
SALVAGE COVERS
Control loss from water damage
Never before have people been so conscious of the importance of adequate equipment for fighting fire.
With Shuredry Salvage Covers and thorough drill in their use as covers and catchalls you can improve your department's record. Light and easy to handle—they do not freeze even at very low temperatures. Shuredry salvages will not crack when folded for storage.
Write for information and prices.
Fulton Bag & Cotton Mills
Manufacturers since 1870
Atlanta St. Louis Dallas Minneapolis
New York New Orleans Kansas City, Kan.

James E. Chalfant Dies

James E. Chalfant, sales representative of the American-LaFrance-Foamite Corporation for twenty-eight years, died on December 16, following a serious illness.

Mr. Chalfant was born in York, Pa., and graduated from the public schools, York County Academy, and the York Collegiate Institute. He learned the trade of machinist at the A. B. Farquhar Company and was also employed by the York Manufacturing Company, before joining the American-LaFrance sales organization at the Pittsburgh office.

For forty years Mr. Chalfant was a member of the York Fire Department, being an active member of the Union Fire Company and a contributing member of the Royal Fire Company. He held offices in county and state organizations of volunteer firemen and was a past president of the Pennsylvania Firemen's Association.

His wife, a son and a daughter survive him.

Rowold Named Mack Vice-President

Appointment of Henry Rowold as Vice President of Mack-International Motor Truck Corporation has been announced by F. F. Staniford, President. Mr. Rowold joined the Mack organization in 1919 in a clerical capacity and later became Executive Assistant to the President. He was placed in charge of national account sales in 1939, and as Vice President will continue in that capacity.

Glenn G. Griswold Killed in Action

Glenn G. Griswold, battalion chief of the Los Angeles County Fire Department, in charge of the Santa Fe Springs District, was killed in line of duty in the Mediterranean area recently. He was serving as a Captain in the U. S. Army.

Chief Griswold was one of the pioneers in the development of the fog nozzle, initiating development on this nozzle about 1925. He was identified with the Fog Nozzle Company.

He was a very progressive officer, and initiated many innovations involving new methods of fire extinguishment.

William R. Ford with Safety Research Institute

William Roy Ford, educator and fire protection engineer, has resigned from the U. S. Office of Civilian Defense, where he has been serving as Assistant Chief of the Fire Defense Education Section, to become assistant to L. W. Hutchins, Director of Safety Research Institute.

While with the Office of Civilian Defense, Mr. Ford assisted in the administration of his unit and in the preparation of educational material on fire defense.

Previously, he was Administrative Officer and Educational Director of the Dallas, Texas, Fire Prevention Council, and Fire Analyst for the City of Dallas. In addition to teaching at the Dallas Fire College, he carried on fire safety educational work with school teachers and pupils and the general public.

SAVE WITH SAFETY BY SPECIFYING SKI-LUG

TRADE MARK REGISTERED

COUPLINGS

MADE FOR ALL TYPES OF HOSE

- FIRE
- MILL
- LINEN
- WATER
- SUCTION
- CHEMICAL

Why not review your coupling specifications *NOW* to be sure of obtaining SKI-Lug couplings on your next hose purchase? SKI-Lugs are manufactured by men with years of experience in the development and manufacture of practical fire fighting equipment. It's this background of "know how" that assures your obtaining the latest and best in quality and performance when you specify SKI-Lug couplings.

WRITE FOR COMPLETE INFORMATION ON THE ENTIRE LINE OF *TRUMPET BRAND* FIRE FIGHTING EQUIPMENT

HOSE BRASS GOODS WB LINE THE WOOSTER BRASS CO. WOOSTER, OHIO

WOOSTER BRASS COMPANY
WOOSTER, OHIO
J. C. SCHELLIN, PRESIDENT

A BADGE *to be proud of* NOW
more than ever BEFORE

Now—because of the Government's prohibition of the use of nickel, brass, copper, nickel plating, and chromium—we are making these badges and insignia in sterling silver, sterling silver gold plated, rolled gold on sterling silver and 14 karat gold.

Today—for just a little more, you get a sterling silver Braxmar Badge—without doubt the best badge you can buy anywhere.

The blue covered catalog is the latest published but write for our new price list, effective July 29, 1943. Only prices in the catalog on 14 karat gold items are still in effect. All auto plates are discontinued for the duration.

C. G. Braxmar Co., 242 W. 55th St., N. Y.

BRAXMAR BADGES

Standard for over 60 years

In Line with
NATIONAL DEFENSE
DAYTON POWERDRAULIC

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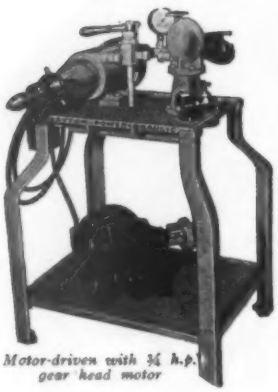

Motor-driven with ¾ h.p. gear head motor

Expands couplings from ¾" to 6" size.

Tests hose up to 700 lbs.

Extra attachment removes old expansion rings from old couplings. No manual effort needed.

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FOR THE PROPER CARE OF HOSE
MORE PRESSURE - LARGER MOTOR
ROOMIER WORK TABLE
REPLACEMENT SEGMENTS (ALL SIZES)
FOR ANY OLD HYDRAULIC EXPANDER

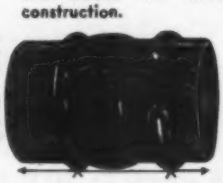
SEND FOR ILLUSTRATED BULLETIN
DAYTON FIRE EQUIPMENT CO.
1242-48 W. 2ND ST. - DAYTON 7, OHIO

DOUBLE SERVICE
with
BI-LATERAL

This installation shows the position of the rubber lining in BI-LATERAL FIRE HOSE when held in a flattened position between calls into service. This is why we can save a city one replacement, because this hose will give double service of any hose constructed under the old method.

Also we can load 25% more on the apparatus bed actually making an $8,000 truck loaded with Bi-Lateral construction, cheaper than a $7,000 one loaded with other construction.

Here's the new DROP-FORGED rocker lug coupling (not cast bronze) with the swivel protecting feature.



BI-LATERAL FIRE HOSE CO.
20 No. Wacker Drive Chicago, Ill.

Practical Training

(*Continued from page* 87)

tion, but the pressure built up may be sufficient to affect the operating lines, and the consequences are likely to be serious, particularly if a line is being operated from a precarious position. To prevent this, an automatic by-pass around the churn valve is provided. Such a valve is known as an automatic relief valve. There are several different types of modern automatic relief valves in common use, but all operate upon the same basic principle.

Q. How does the automatic relief valve function?

A. Fig. 4 shows a typical automatic relief valve. The relief valve is connected to the discharge chamber of the pump. Chamber D is connected to the pilot valve by a small passage marked by the arrow. The pilot valve which is referred to by the arrow N is controlled by the springs shown in the sketch; this acts on the same principle as a safety valve. When the pilot valve is set at any pressure, for example, 120 pounds, and the pressure in the discharge chamber of the pump exceeds 120 pounds, the valve N rises. With the lifting of the valve, the water from discharge chamber by-passes as shown by the arrows into chamber D. The pressure then pushes down the valve H, and the water from discharge chamber then flows directly into the chamber marked E as shown by the curved arrow.

From chamber E the water passes down the return pipe to the suction chamber of the pump. The valve R acts as a drain from pilot valve and chamber D. All the time the relief valve is open, a steady stream will be emitted from the valve R. Immediately the nozzle is open, and the pressure in discharge chamber goes below the pressure at which the relief valve is set, which we are assuming is 120 pounds, the pilot valve N closes, the spring in question taking care of this. The pressure in chamber D and pilot valve is then relieved through the cock R, after which valve H is closed through the action of the spring beneath it and the pump resumes pumping. All movements as explained above take place in less than a second.

Q. What is the combination automatic relief valve and manually operated churn valve?

A. In most of the older models of pumps, the automatic relief valve and the manually operated churn valves were separate features and controlled through independent by-passes between the discharge and suction sides of the pump. Most of the modern pumps provided with these valves combine the two functions in a single by-pass control assembly. This combination is known as the combination automatic relief valve and automatically operated churn valve.

Q. What is an automatic pressure regulating governor, and what is its purpose?

A. Sudden shutting off of a discharge gate valve on a centrifugal pump will not cause the pump to stop nor the motor to stall, as it will with the displacement type pump, since there is a continuous passageway through the pump between the suction and the discharge side. However, shutting the gate

BOYER

Headquarters for
"DEPENDABLE"
FIRE APPARATUS and FIRE DEPARTMENT SUPPLIES

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FORTIFY FOR FIRE FIGHTING

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BOYER FIRE APPARATUS CO.
LOGANSPORT INDIANA

WANTED
IDLE FIRE FIGHTING EQUIPMENT

Today — right now — there are many American communities and municipalities which sorely need additional fire fighting facilities to give their citizens adequate fire protection and are unable to secure these because of war conditions.

Search your own department or fire stations for any surplus apparatus or old usable equipment and offer it for sale through the classified "Opportunities" columns of this magazine. Rates are low—only $5 per inch.

FIRE ENGINEERING
24 W. 40th St., New York 18, N. Y.

DUPOR Combination MASK and GAS-TIGHT, Fog-Proof GOGGLES

The fire-fighters' favorite! Water soaked sponge filters and cools breathed air. Water inside goggles keeps fog off lenses.

SAMPLE OUTFIT $4.50

H. S. COVER, 68 Chippewa St., South Bend, Ind.

JANESVILLE QUALITY TURN OUT CLOTHING

Still Available

Our turnout suits are giving excellent satisfaction in most of the large fire departments throughout the U. S. and

THERE MUST BE A REASON WHY SO MANY FIREMEN INSIST ON JANESVILLE QUALITY

Rubber and Duck Coats and Bunkers, Boots, etc.

JANESVILLE APPAREL CO.
JANESVILLE, WIS.

valve will stop the flow of water through the pump and the pump impeller will churn the water in the pump casing. When the flow of water is stopped, the pump, and consequently the motor, will be relieved of a great portion of this load. When the load is relieved, the motor's speed will increase greatly, and since the pump speed is proportional to the motor speed, the speed of the pump impeller will also increase. This can readily be illustrated by releasing the clutch of an ordinary automobile when the car is in gear and the throttle depressed. Theoretically the pressure will increase at a rate equal to the square of the speed increase of the impellers so that it may readily be seen that even a slight increase of speed would result in an appreciable increase in pressure.

If such pressure increases were permitted to take place every time a discharge valve were closed, difficulty in handling this speed, and possible danger to the men on the lines might result. Furthermore, a large increase of speed in the pump under appreciably no load would not be beneficial to the pump nor the motor.

For these reasons, centrifugal pumps are frequently provided with automatic relief valves similar to those used on displacement pumps. Lacking a relief valve, some other form of automatic pressure regulator is provided. Two common types of pressure controlling governors which serve the same functions as a relief valve are found on centrifugal pumps. Fundamentally, the governor operates in principle along the same line as a relief valve in that it may be said to relieve at a predetermined pressure, and its operation is actuated by the actual pressure at which the pump is discharging. Common types of governors differ from relief valves, however, in that instead of opening a by-pass between the suction and discharge sides of the pump, they control the setting of the carburetor valve on the motor, thus affecting directly the speed of the motor. Both types of governors referred to above are based upon the carburetor control operation. One, however, utilizes a pre-loaded spring to balance the pump discharge pressure, whereas the other utilizes the pressure created by the pump itself.

Clarence Stewart Dead

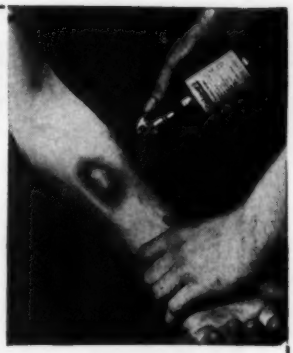
Clarence D. Stewart, for nearly thirty years a member of the sales staff of the American-LaFrance-Foamite Corporation, died Jan. 24th at his home 20 Bar Beach Road, Port Washington, L.I. His passing, which was sudden and unexpected, followed two years of ailing with lukemia.

Mr. Stewart, who was sixty-two, was well known and highly regarded in fire circles, particularly in the East where his American-LaFrance representation embraced parts of Long Island, Pennsylvania and New Jersey. He started in the fire equipment business in 1908 with the old S. F. Hayward Co., and when that business was taken over by the American-La France organization in 1915 he continued along.

At the last Convention of the International Association of Fire Chiefs, Mr. Stewart was voted an Honorary Life Member. He was also a 32nd degree Mason and an Elk.

Surviving are his widow, one daughter, and a son now in the Army.

QUICK



The first **FIRST-AID IN THE TREATMENT OF BURNS**

The quicker a burn is treated after occurrence, the less probability of blister formation and complications. Remember, the first five minutes are often the most important in the surface treatment of burns. That's why Gebauer's Tannic Spray should be conveniently available at all times. A stable, antiseptic tannic acid solution, ready for instant use. Simply "press the lever" on the dispenseal bottle and direct cooling, soothing spray over burns. Evaporates rapidly, leaving protective tannic film. Available wherever first aid materials are sold. Write for literature.

THE GEBAUER CHEMICAL CO.
Cleveland, 4, Ohio

Gebauer's

TANNIC SPRAY

"ALL AMERICAN CHOICE" INVINCIBLE NOZZLES PREPARE — PROTECT

Portable equipment is the watchword of today.

Buy—

INVINCIBLE NOZZLES

and enjoy the benefits derived by experience of the pioneers in the nozzle field.

Fig. 403

F. N. McINTIRE BRASS WORKS
Successors to A. J. Morse & Son, Inc.
BOSTON, MASS.
1837 - - 1941

ALARM BOX
FA-26

FA-26 Grounding Device
Harrington Fire Alarm Box

Here is an alarm box that is as modern as the Post-War Era. It is light in weight, has a long life construction and is easy to install. The Harrington FA-26 is a sixteen-round succession, non-interfering, automatically grounded alarm box.

Write for further data.

HARRINGTON
SIGNAL COMPANY
Moline **Illinois**

FOR THIRTY YEARS
COLT NOZZLES
HAVE STOOD THE TEST OF TIME

If You Are Unable To Obtain COLT SHUT OFF NOZZLES Promptly From Your Regular Source of Supply—Please Be Patient—Army And Navy Orders MUST Be Handled First.

Please Remember —COLT NOZZLES Are Worth Waiting For!

EXCELSIOR BRASS MFG. CO.
3452 N. Knox Ave., Chicago, Ill.

Manufacturers of the COLT Nozzle and Fire Department Brass Goods for 30 Years

Activities of Jennings Fire Department

The Jennings, La., Volunteer Fire Department was organized in October, 1803 and had as its equipment, two 500-foot hand-drawn hose reels. This equipment was used until about 1915 when a four-wheeled hose wagon was purchased. A team of horses used on street work in the daytime was kept in the station at night to pull the fire equipment.

Chief A. O. Eastman

A. O. Eastman was appointed chief in May, 1917, which place he has held ever since. He was a charter member of the fire department organization and came up through the ranks.

In October, 1918, a 500-gallon pumper was purchased, and it is still in service. In 1922 another machine was purchased and equipped with a 350-gallon booster pump. This was the first booster tank to be put in operation in the state. The soda and acid tank was taken off the 500-gallon pumper and an 85-gallon booster tank installed. In 1937 two trucks complete with small equipment were purchased.

There are twenty volunteer or call men in the department. The men get paid for each fire alarm they answer. They are paid one dollar each if it is just an alarm; three dollars if they use water and three dollars from 10 p. m. until 6 a. m. for anything. The telephone is used for an alarm system and is hooked to a drop that operates a 5 horsepower siren. Eighty-five auxiliary firemen have been trained and drill once a week.

Chief Eastman and his men have a very good fire prevention campaign the year round, holding down losses to a minimum of less than seventy-seven cents per capita for the 8,500 inhabitants of Jennings, La.

Editor's Note: Since this material was set in type word has been received of the death of Chief Eastman. At the request of members of his department, FIRE ENGINEERING *is printing the story as it was furnished.*

INCOME TAX DEDUCTIONS FOR FIREMEN

Certain income tax deductions are allowed to firemen as legitimate expense incidental to their profession.

These include firemanic convention expenses, membership fees in fire service associations, uniforms and other personal equipment needed in line of duty (when purchased by the wearer at his own expense), and subscriptions to technical journals which serve them in their work.

J. J. O'Doherty Chief at Lorain, Ohio

The gold badge that has been worn by Lorain, Ohio, fire chiefs for fifty years was pinned on John J. O'Doherty, newly appointed head of the Lorain Fire Department.

The badge was presented by John Hart, retired assistant fire chief, who had served with Chief O'Doherty in the department for more than a quarter century. This badge has been worn by four chiefs, the last being Chief David Hatt who wore it for thirty-two years, and whom Chief O'Doherty succeeded.

Since Hatt's retirement, Chief O'Doherty had been serving as acting chief pending his formal appointment which followed announcement that he stood high in a civil service test.

Chief O'Doherty entered the Fire Department in 1909, and in the thirty-four years since has moved steadily up the ladder of promotion.

Chief O'Doherty Receives Letter of Appointment and Badge of Fire Chief

Left to right are Mayor Harry Van Wagnen, Chief John J. O'Doherty and John Hart, retired assistant chief. Mr. Hart is pinning upon the chief's uniform the gold badge that has been worn by Lorain fire chiefs for the last fifty years.

Fyr-Fyter Extinguishers are helping protect our armed forces in the air, on the sea, and on land. Home front fire departments rely on Fyr-Fyter equipment to save priceless lives and protect property urgently needed in war plants. Fyr-Fyters back up firemen by instant and dependable service.

Stop taking chances. If you need essential equipment, write us today. We are prepared to advise and serve fire departments and war production plants immediately. Get the facts regarding Fyr-Fyter equipment for your protection. Write today.

THE FYR-FYTER CO.
Dept. 101
Dayton 1, Ohio

Fyr-Fyter

Chief Hugo Delfs Dead

Hugo R. Delfs, for over thirty-seven years Chief of the Lansing, Mich., Fire Department, passed away on Thursday, January 27th.

An Early Photograph of Chief Hugo R. Delfs

Chief Delfs joined the department in 1890, at which time there were but two stations, thirty-seven alarm boxes, a chemical wagon, two hose carts, and a hook and ladder wagon that had to wait until a hack or baggage team could be obtained to pull it to the fire. Delfs was soon made captain, and in 1904 he was promoted to Chief, a position that he held until his retirement in 1941.

Today that department numbers 112 full time firemen, eight stations and sixteen pieces of apparatus.

Chief Delfs received distinguished honors and recognition for his work from both state and national organizations. He served as president of the National Firemen's association in 1912 and 1913 and as president of the International Association of Fire Chiefs in 1915.

From 1906 to 1911 he was president of the Michigan State Firemen's association, and in 1933 and 1934 headed the Michigan Fire Chiefs' association. His last presidency was of the Great Lakes Fire Chiefs' association from 1936 to 1938. In 1937 he was awarded the Paxton Mendelsohn trophy in recognition of his fire prevention achievements.

Convention Dates

May 23-25—NEW YORK STATE FIRE CHIEFS ASSOCIATION. Annual meeting, Utica, N. Y. Secretary, Chief Henry Drake, Clinton Corners, New York.

Aug. 15-17—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. Annual meeting. Secretary, Chief Jay W. Stevens, Merchants Exchange Building, San Francisco, Cal.

Aug. 22-25—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting. Grand Rapids, Mich. Secretary, Chief Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

Oct. 2-4—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting. Boston, Mass. Secretary, Irvin Shulsinger, 8 East 41 Street, New York, N. Y.

NOW, SPEED TO FIRES IN SAFETY WITH AN 06 MASTER-LIGHT!

Chief, let this light show you that "Wig Wag MASTER-LIGHTS" mean *faster, safer, quieter* runs! Powerful sweeping red beam warns traffic 1,000 feet ahead—clears way in any weather. Fixed lamp head cannot stick in snow or sleet. Effective even in daylight!

CLEARS YOUR SIDE OF STREET

Write now for new free Fire Chief Folder illustrating MASTER-LIGHTS.

Send for free Folder NOW!

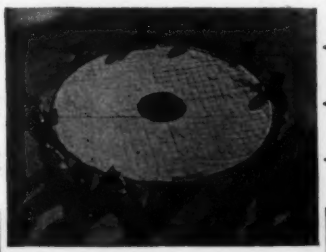
CARPENTER MFG. CO.
200 Sidney St., Cambridge, Mass.

ATLAS
LIFE NETS

"the finest," have been instrumental in saving many hundreds of lives, without injury to the person rescued or to the men holding the net.

The many exclusive features of the Atlas net have been proven through performance. ATLAS NETS are still available and are the only modern, up-to-date nets, with dual action impact absorbers.

Specify ATLAS when you want dependable life nets.



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26 Warren St. New York 7, N.Y.

Always Ready—
QUAKER
FIRE HOSE
CHEMICAL
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FORESTRY
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SUCTION
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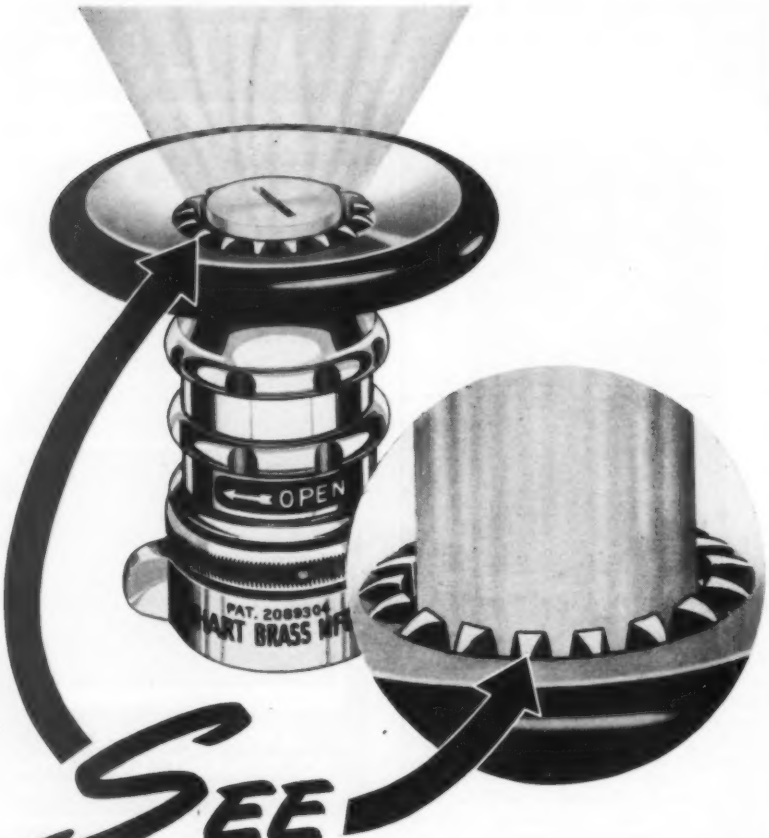
QUAKER QUALITY
REG. U. S. PAT. OFF.

QUAKER RUBBER CORPORATION
Main Office & Factory: PHILADELPHIA
NEW YORK • CLEVELAND • CHICAGO • HOUSTON
Western Territory
QUAKER PACIFIC RUBBER COMPANY
SAN FRANCISCO • LOS ANGELES



SEE THOSE TEETH?

● They are the greatest development in fire department equipment since the advent of the famous Elkhart Mystery Nozzle.

● They provide the fullest measure of fog—with utter simplicity of design.

● They do their work without any necessity of extra moving parts, extra waterway or holes to clog.

● In the open position they are entirely out of the way of the solid stream. In the fog position they cause deflection which fills the fog cone *solidly*.

● With this new achievement, the Elkhart Mystery Nozzle gives you complete shut-off, solid stream and varying degrees of conical fog up to a *solid* cone—all in one nozzle—and all with a simple twist of the wrist!

● This nozzle has so many applications and operates so positively in each, that it should be part of the equipment of every fire fighting unit in the nation.

ELKHART BRASS MFG. CO., INC.

Elkhart, Indiana

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for Action ON THE FIRE FRONT

FWD Fire Apparatus Has The Tested Reserves That Count in Fire Fighting

Whatever the emergency calls for, the reserves are there with four-wheel-drive apparatus—reserve speed to gain precious minutes — reserve power to climb a steep grade — reserve traction to get through snow or mud-blocked streets — reserve safety for fast travel on wet, slippery pavements! The two driving axles of the FWD, delivering powered traction to the front as well as the rear wheels, give you ample reserves of all the factors that count in fire-fighting —speed-power-traction-safety. Cities from coast to coast value the plus performance available in FWD apparatus. FWD builds a complete line of fire-trucks—all types, all sizes—with rotary or centrifugal pumpers in triple or quadruple combinations, aerials, etc. Write for literature.

FWD model KHS, 500 gallon pumper recently purchased by the City of Anchorage, Alaska.

THE FOUR WHEEL DRIVE AUTO CO., Clintonville, Wis.

***Canadian Factory:* KITCHENER, ONT.**

One of a fleet of FWD 85-foot aerial ladder trucks in service for the City of New York undergoing test by the Fire Department engineers. The aerial ladders on these trucks are of anti-gravity design and are raised by spring hoists. Less than 20 seconds are required to raise the ladder to a vertical position and extend it to its fullest height. The special FWD tractor developed for this service provides for quick acceleration, high sustained speeds and extra safety in steering control.

FWD

FOUR-WHEEL-DRIVE **FIRE APPARATUS**

• Built by the Oldest and Original Exclusive Builders of Four-Wheel-Drive Trucks.

THE FEAR OF FIRE

is dispelled with the use of FOGNOZLS

ANYONE CAN USE A FOGNOZL

● **FOGNOZL FACTS**—Prepare by accumulating data on this new water Fognozl fire-fighting method that has revolutionized old methods. Fognozl accomplishments are daily emphasized by our armed forces.
● A brochure of **FOGNOZL FACTS** will be sent, without obligation, to those engineers or executives who will so request it on their official or department letterhead.
In Folder Convenient for Your File

GRISWOLD ORIGINAL
WATER FOGNOZL

- PROTECTION TO PERSONNEL
  TO FIREMEN AND FIRE VICTIMS
- RAPID EXTINGUISHMENT
  A MATTER OF SECONDS
- REDUCED WATER DAMAGE
  A RATIO OF 1 TO 30
- ECONOMY & AVAILABLE SUPPLY
  PLAIN WATER

A PRIZE FOR THE BEST

A prize is hereby offered for the best "still" photographs showing the sequences of extinguishing fires occurring in the United States and Canada, with any of our FOGNOZLS, old style or new. We reserve the right to use any or all photographs for advertising purposes and any sent in are sent to us with this understanding. The only compensation is the prize to the best pictures. The prize? Why a FOGNOZL, of course.

FOG NOZZLE COMPANY

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